THE IRON AGE

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Reading Matter Contents.....page 1172
Alphabetical Index to Advertisers " 184
Classified List of Advertisers " 174
Advertising and Subscription Rates " 1179

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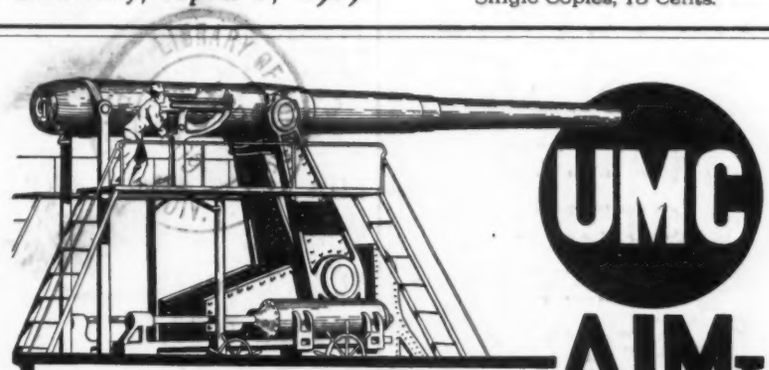

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See page 50

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THE IRON AGE

New York, Thursday, April 8, 1909.

A Variable Speed Air Controlled Transmission.

A novel speed changing power transmission is that made by the Variable Speed Clutch Company, Milwaukee, Wis. Instead of cone pulleys, gears, or friction contacts at different diameters, this device has a contact surface of fixed or constant diameter, being the interior of a drum resembling such as is commonly employed in the expanding band type of clutch, and obtains the variable speeds by intermittent contact with this constant speed surface. This contact is secured through the application of air under pressure, ranging from 2 to 30 lb., furnished by a small pump or taken from the shop supply system. The construction will be understood from Figs. 1, 2 and 3, which show, respectively, the belt driven ceiling type, motor driven floor type and a countershaft type applied to the drive of a planer.

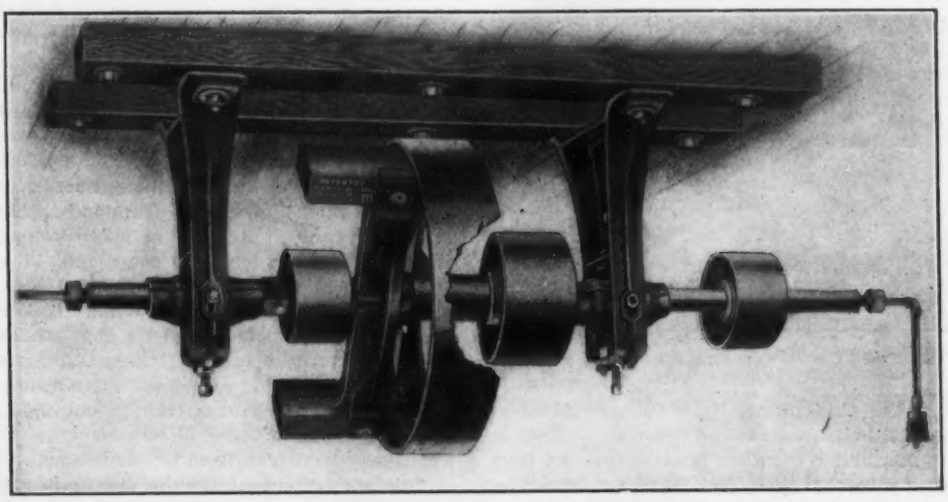


Fig. 1.—A Belt Driven Ceiling Type of the Transmission Made by the Variable Speed Clutch Company, Milwaukee, Wis.

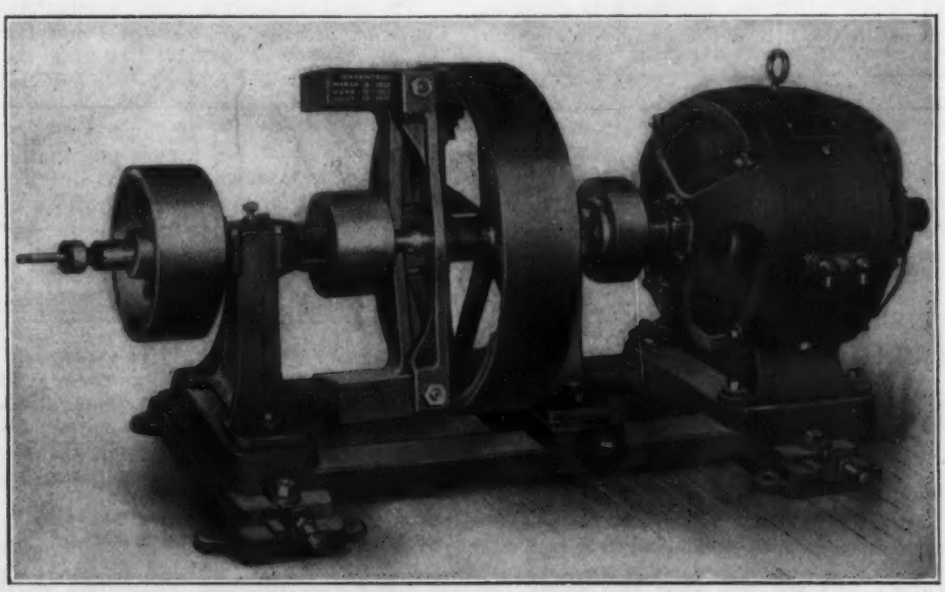


Fig. 2.—A Motor Driven Floor Type Variable Speed Clutch.

The line drawing, Fig. 4, perhaps best shows the mechanism and the principle of its action, this being a section of a belt driven countershaft type. The driven pulley *a* is connected by belt to the line shaft. This pulley is secured to the extended hub of the drum *b* and the two revolve together freely on the shaft *c*. The interior of the drum is smooth bored, and adapted to make contact with the shoes *d*, which are turned to fit it. These shoes are pivotally supported at *e* on a spider *f*, which is keyed to the shaft. In one piece with each shoe is the counterweight *g* and the lever arm *h*. The inwardly projecting ends of these arms engage the hub of a piston *i*, loosely mounted on the shaft and fitting the interior of the cylinder *k*, which is also keyed to the shaft. When air is admitted through the bore in the shaft and from the opening *l* into the interior of the cylinder, a pressure is exerted on the piston, forcing it in the direction which presses the shoes against the interior of the drum. With all the parts revolving this would constitute the device simply a clutch engaging the driven and driving members to run at the same speed were it not for the counterweights. Their action by centrifugal force opposes the pressure of the shoes against the drum and together with the natural tendency of the shoes to rebound after each impact because of the different speeds of the shoes and drum, causes the shoes to release their grip on the drum as quick as it is made. Before there is any sensible retard in the speed of the spider the air pressure again produces momentary contact of the shoes with the drum, and this vibratory contact continues at a frequency which depends on the air pressure and results in a corresponding rate of uniform transmitted speed. The air pressure furnishes an elastic

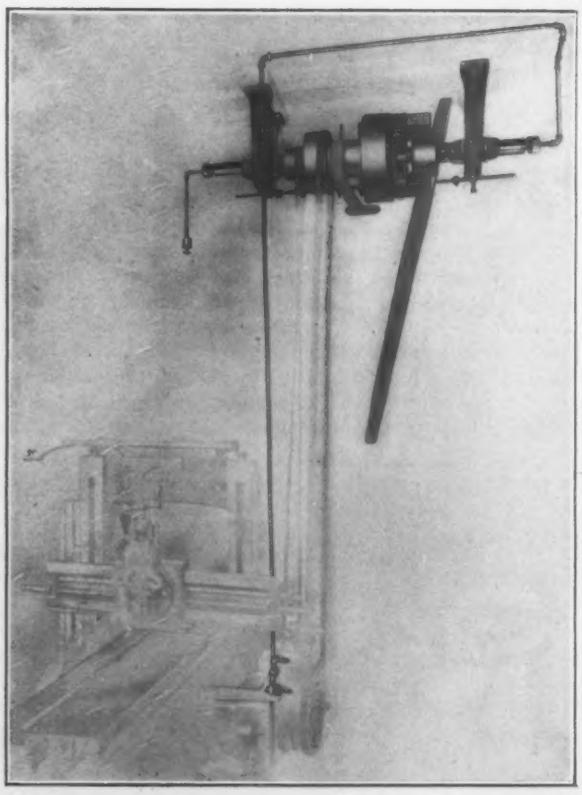


Fig. 3.—A Variable Speed Clutch Countershaft Driving a Planer.

cushion that makes this intermittent contact possible.

It is to be distinctly emphasized that the action is not one of slipping under constant friction, as has been plainly proved in a countershaft that had been in service for a year. The wear was so slight that some of the original tool marks still remained on both the shoes and the drum. As before stated, the cylinder *k* is keyed to the shaft, or is secured to it by set screws, as is also the driving pulley *m*. The sectional view also shows the stuffing box at *n* for the air pipe and the controlling devices for the air pressure. The valve which controls the pressure is set to give the required speed. Without altering the setting of this valve the clutch can be started and stopped by the stop cock *p*, which cuts off or admits the graduated pressure to the cylinder *k*. A pressure gauge is also shown, which indicates what pressure is obtained, and may be calibrated to read directly in revolutions of the shaft. At the opposite end of the shaft is another stuffing box, *q*, through which oil is admitted from the grease cup *r* to lubricate the interior of the loosely running parts on the shaft *c*, through the oil holes clearly indicated.

The variable speed transmission is made in a number of types and sizes suitable for application to almost all forms of machinery in which a variable speed drive is required, including machine tools, woodworking machinery, and various machinery used in manufacturing processes. Advantages that will appeal are the simplicity of the device, there being but few parts; the elimination of tight and loose pulleys, step cones, &c., which conduces to compactness; the fact that the set speed is maintained regardless of the load (in instances of variable loads, such as on a planer when taking a cut that varies in force required due to different amounts of metals removed, the counterweights act on the principle of a governor and maintain the required speed). Ease of control is another point in favor of the device; the air pipes can be led to any point where the valves may be most conveniently located. Shifting of belts and manipulating of gears are entirely done away with, and the device is practically noiseless in operation.

The motor driven type of variable speed transmission shown in Fig. 2 is one in which the motor and clutch are mounted on the same base connected by a flexible coupling, and in use this device may be shifted to take up slack in the belt to the machine driven. It may be operated as indicated as a floor stand or suspended overhead or from side walls, as occasion may require, in which case the only changes necessary are some slight ones in the hangers.

The type of clutch shown in Fig. 3 is one for planers and provides a constant high speed return pulley mounted on an extension of the drum hub, which, as before explained, runs at a constant speed determined by the line shaft with which it is connected. There is, therefore, obtained a constant return speed regardless of the speed of the planer on the cutting stroke, and the facility for changing the speed for that stroke is such that the planer can be operated at its maximum capacity with the least trouble and attention. The compressed air for the control of the clutch may be obtained from a shop supply system, if there is one, or from a small pump which may be driven from the main shaft. Only 1 cu. ft. of free air per minute is the maximum requirement of air.

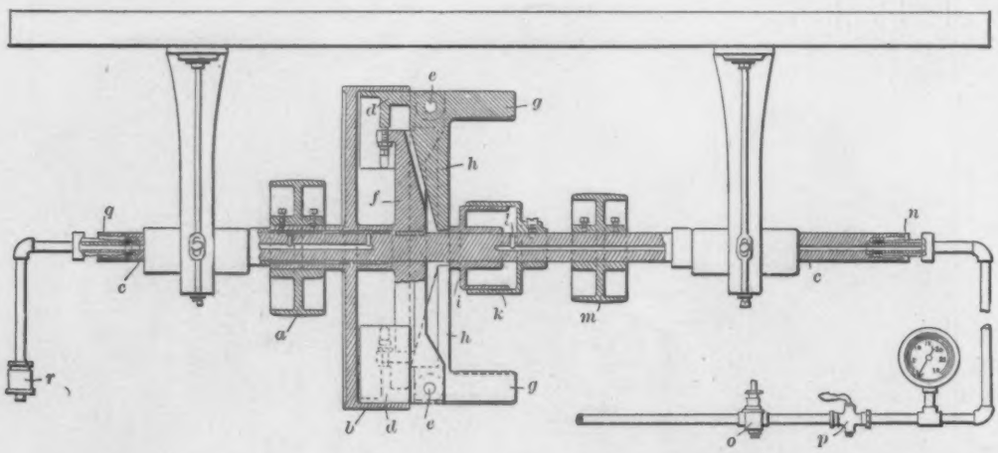


Fig. 4.—Longitudinal Section of a Variable Speed Clutch of the Type Shown in Fig. 1.

The monthly meeting of the mechanical section of the Engineers' Society of Western Pennsylvania was held in the Fulton Building, Pittsburgh, on the evening of April 6. C. B. Auel read a paper on arc welding, illustrated by lantern slides. C. S. Proudfoot, chief electrician of the Carrie furnaces, gave a talk on the use of the electric arc to open the tap hole in furnaces when the metal has chilled. C. Pirtle, general manager of the Electric Controller & Mfg. Company, Cleveland, and H. D. James and C. E. Stevens of the Westinghouse Electric & Mfg. Company, were present and took part in the discussion.

T. E. Fieger, formerly connected with the engineering department of the American Sheet & Tin Plate Company, and Alfred Tompkins, consulting engineer, have organized the Summit Engineering Company, with offices in the House Building, Pittsburgh. The company will engage in a general line of engineering, contracting and concrete work.

Canada's Trade Relations with France and Germany.

TORONTO, April 3, 1909.—The Franco-Canadian treaty of commerce was this week approved by the French Senate. Upon the exchange of ratifications it will come into effect. Under it Canada gets the benefit of the French minimum tariff on a long list of articles, and France gets the benefit of the Canadian intermediate tariff on a long list, as well as the benefit of still-lower duties on about a dozen classes of commodities. In a former letter the articles mentioned in the treaty under the general head of iron, steel, metals and manufactures thereof were enumerated. It is expected that the treaty will cause a marked increase in the trade between the two countries, with the advantage probably on the side of France. France knows what it is getting, inasmuch as it is rather certain that Canada's intermediate tariff will remain for some years as it is, and as the other Canadian advantages conceded are specified in rates of duty. But Canada is not able to estimate the value of the French concessions, inasmuch as they are expressed in the treaty in the general terms, "the benefit of the French minimum tariff," which tariff is even now in course of revision, the tendency of which is upward.

Agricultural Machinery.

One class of Canadian articles which the treaty was expected to promote the sale of in France was agricultural machinery. When the treaty was before the House of Commons one of the members for Hamilton, Ontario, made a speech in support of it. He stated that the International Harvester Company's works in that city were to be enlarged, in order that the company might make there all the machines called for by its French trade. It would use its Canadian works for its French trade, he said, because thereby alone it could obtain entry to the French market at minimum tariff rates.

It turns out, however, that the company will this year build a plant of its own in France, having, it is understood, already acquired a site at Lille for that purpose, and having obtained the incorporation of its French establishment. Thus, it appears that, not only will the International Harvester Company's Canadian plant not be the center of the company's manufacturing on French account, but also that it will have a plant in France to increase there the internal competition other Canadian agricultural machinery makers will have to cope with in order to get any benefit out of the concession of the French minimum tariff to Canadian machinery. As Canada is to pay a large annual subsidy to a steamship line giving a direct service between French and Canadian ports, there is a strong likelihood that the British trade in Canada will be affected adversely in some lines by the competition of France, the duties at which the designated French goods are admissible being not much above those of the preferential rates granted to Great Britain.

Chances for a German Treaty.

The prospects for a reciprocity treaty between Germany and Canada seemed brighter some time ago than they do now. The belief that Germany is preparing to dispute the supremacy in naval power with Britain has not made Canadians more enthusiastic for closer trade relations with Germany. Of the intensity of Canadian feeling on the side of Britain in the race in Dreadnought construction no one can have any question who looks over the exchanges in a Canadian newspaper office. Editorials, letters, interviews, resolutions of local boards of trade, &c., are to be read in at least every second paper, all warmly advocating a Dominion contribution of the price of a Dreadnought to strengthen the British Empire's navy. There is no doubt that popular sentiment is in advance of the resolution passed by the House of Commons on the subject, hearty though that resolution is in its expression of the country's readiness to cooperate with Britain in naval defense. While the country is in that temper, the Government would scarcely find it popular to undertake the negotiation of a treaty of commerce with Germany, especially as such a treaty as Germany is supposed to desire would put her on a footing in the Canadian market almost as favorable as that to which the preferential tariff admits Britain.

Upward of two months ago Baron von Schoen, Germany's Foreign Secretary, stated, in reply to a question asked in the Budget Committee of the Reichstag, that it was not impossible an opportunity would arise for the discussion of a commercial treaty with Canada after the conclusion of the Franco-Canadian negotiations. On the same day Sir Richard Cartwright, Minister of Trade and Commerce in the Laurier government, answered a question put to him in the Senate as to surtax on German dutiable goods. He said that while no formal negotiations were in progress with Germany in reference to new trade relations, communications had passed between German and Canadian officials on the subject, and that it appeared to him probable that Germany would give Canada the same tariff treatment it did before the present reprisal duties were applied by the one country upon imports from the other. It is regarded as a certainty that Germany would insist on most-favored-nation treatment in return, and would therefore be satisfied with no less in the way of concession than Canada has granted to France.

But to an industrial country like Germany, with its wonderful commercial enterprise, the conceding of Canadian market terms equivalent to those given to France would mean the opening up of a great German trade here. It would mean the displacement of large volumes of British and Canadian goods. At no time, therefore, was there much inclination on the part of Canadian people, save among the farmers, to form closer trade relations with Germany. At present it is believed the Canadian Government is more lukewarm on the subject than it was some time ago.

A recent Canadian Associated Press dispatch from Berlin contains the advice that the German-Canadian Economic Association will send delegates to Canada this summer for the purpose of promoting closer trade relations. Also special commissioners are to be sent to Canada by German newspapers. Besides discussing with Canadian Ministers the advantages of greater commercial intercourse between the two countries, the delegates, who are to be representative German business men, will inform the Canadian public of plans for systematically working up a German demand for Canadian products, the Economic Association aiming to be of mutual service to German and Canadian mercantile interests.

C. A. C. J.

Identifying Smiths.

Statistics show that 1.1 per cent. of electrical engineers are named Smith; that is, out of every 100 there will be a little more than one Smith. In the office force of a large corporation it often happens that there are so many Smiths holding positions of responsibility that some special means must be taken to identify them. The Crocker-Wheeler Company has had considerable trouble at its main office, at Ampere, N. J., owing to the impossibility of getting its delivery boys to distinguish between the many Smiths there employed. Almost invariably one Smith would receive papers intended for another. This difficulty has been satisfactorily solved by posting on its various bulletin boards the following:

Identification Table of Smiths at Ampere.

Initials.	Departm't.	Complexion.	Stature.	Characteristics.
J. M. S.	Engineering	Dark	Short	Snappy but smiling.
V. T. S.	Engineering	Dark	Long	Handsome and melancholy.
L. P. S.	Drafting	Light	Tall and stout	Chubby and angelic.
R. W. H. S.	Drafting	Light	Short	Unshaved and grumpy.
F. W. S.	Laboratory	Dark	Short and slender	Very nervous.
D. S. S.	Sales	Sparse, mixed	Thin	Wide-eyed and serious.

N. B.—Shop Smiths will hereafter be numbered.

Wickes Brothers, Saginaw, Mich., and Pittsburgh, Pa., have moved their office and showrooms from Fourth avenue to Forty-fifth street and Allegheny Valley Railway, Pittsburgh, where they maintain a large warehouse.

Armington Electric Hoists.

The distinctive feature of the hoists made by the Armington Electric Hoist Company, Wickliffe, Ohio, is the load brake which is of the coil type and a radical departure from anything heretofore used on cranes or hoists. The arrangement is such that the pawls or retaining band used with the ordinary coil and disk brakes are not required, the one coil, by means of a simple and peculiar device serving the functions of both braking and retaining. The brake is thus virtually a one-piece brake, whereas the ordinary disk and coil brakes have numerous parts, making them more or less complicated. This simplicity contributes to the reliability and durability of these hoists. The compact design permits an unusually high hook travel; on most of the sizes manufactured by this company the minimum distance from the top of the hoist to the hook is about the same as on ordinary chain hoists.

Fig. 1 shows a type E hoist, with a plain trolley as used for handling a ladle in a foundry, and Fig. 2 the type F hoist, which has power travel.

The casings are so designed as to form a framework

Fig. 1.—A Foundry Installation of the Type E Hoist with Plain Trolley Made by the Armington Electric Hoist Company, Wickliffe, Ohio.

for the hoist and a housing and protection for the hoisting mechanism. The main casing also serves as a reservoir for the lubricant for the brake and journal bearings. These casings, however, leave all the mechanism thoroughly accessible, and a few minutes suffices to take out all the working parts and put them together again. The machining is done with the aid of jigs and special tools, which make all the parts interchangeable. The journal bearings are lined with phosphor bronze.

The gearing is spur toothed, with teeth cut from the solid metal, and consists of a single train of gears in three reductions. No worm or differential gearing is used. The arrangement of the gearing is such that the pressure on the journal bearings is a minimum. The matter of interchangeability and liberal provision for wear in the working details is given special consideration, as they are matters of vital importance in machinery of this character. The entire mechanism is located in two casings; the drum, drum gear and its pinion are located in one and the first two reductions of gearing and the brake are in the main casing, as shown in Fig. 3.

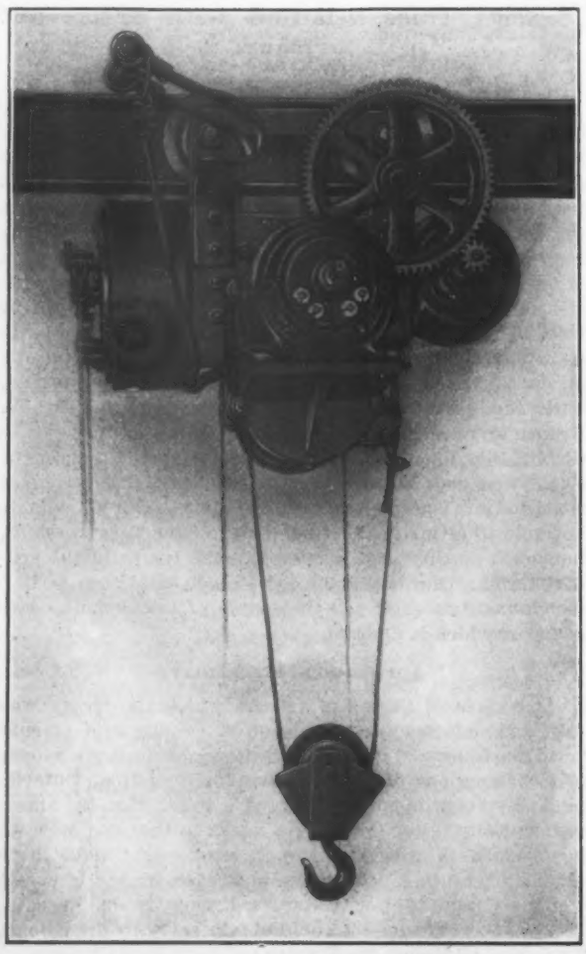


Fig. 2.—The Armington Type F Hoist with Power Travel.

This latter is oil tight and the mechanism therefore receives continuous lubrication. The lubricant used consists of a mixture of machine oil and graphite.

Another feature of the brake is that in addition to its action as a load brake one coil of it serves the function of motor brake. This, the first coil, sets the brake for all loads whether hoisting or lowering, thus controlling the motor whether running with or without load. The other coils depend on the load and the heavier it is the greater is the braking effect. Liberal provision is made for wear and the wearing surface is such that the pressure per square inch is less than usual on crane brakes. One defect of the usual coil brake lies in the tendency of the last coil to wear more than the others. This is overcome in the Armington brake by increasing the amount of sur-

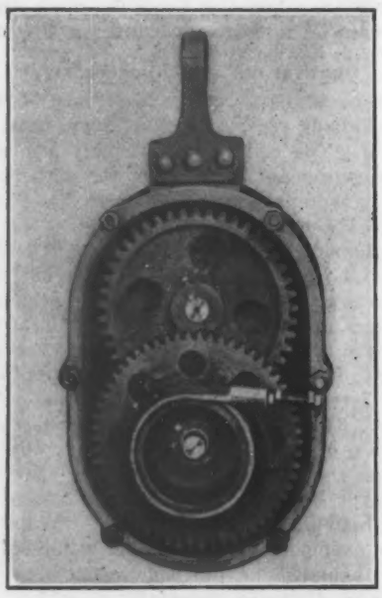


Fig. 3.—Interior of the Main Casing, Showing the First Two Reducing Gears and the Brake.

face and amount of metal in the coil enough to fully make up for this tendency. The results of continuous service under severe conditions, day and night, have demonstrated the reliability of the brake.

The minimum distance from the hook to the top of the hoist varies from 18 in. on the 1000-lb. hoist to 4 ft. 2 in. on the 10-ton hoist. Automatic limit attachments are provided on all hoists to prevent the hook from traveling too far and also when required to stop the load at any desired point. Two types of limit attachments are used, one in which the controller is reversed by a lever operated by the hook block and the other in which the controller is reversed by means of mechanism connected with the hoist gearing. The hook block casings are made of steel and the hooks are drop forged from soft steel.

The hoists are especially well adapted to alternating current and a large proportion of the hoists thus far manufactured have been furnished with such equipment. As a rule the hoists are operated from the floor and the controllers used are of the spring return type with ropes or chains suspended so as to be within easy reach of the operator on the floor. The motors used are of standard crane type, made by various manufacturers.

These hoists are manufactured in standard sizes of 1000, 2000, 4000, 6000, 10,000, 15,000 and 20,000 lb. capacity.

The Eclipse Concrete Mixer.

Especially prominent as novel features in the Eclipse concrete mixer, made by the Standard Scale & Supply Company, Pittsburgh, Pa., are the large opening in the drum and the low charging point. It will be noticed in

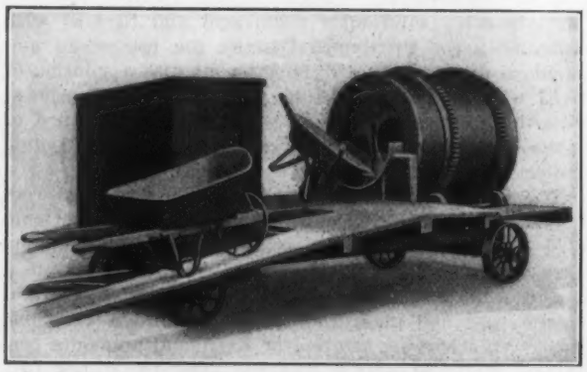


Fig. 1.—The Eclipse Concrete Mixer Made by the Standard Scale & Supply Company, Pittsburgh, Pa., Showing the Manner of Charging.

Fig. 1 that the material charged has only to be brought up a short incline by a wheelbarrow, which eliminates the necessity of a charging elevator of any sort, doing away with such an additional power consuming factor and its frequent necessity of additional attendance. This illustration, and, better, Fig. 2, show the large opening in the drum which enables the operator to see the mix from the time it is charged until it is discharged and also makes it accessible for cleaning. This is said to be the only mixer having this feature.

The Eclipse mixer is of the batch type, as distinguished from the continuous mixer. Its product is claimed to be always uniform, and because the mixer is simple in construction and operation and is devoid of parts which are likely to clog or get out of order, the machine is offered as one which can be readily understood and operated by unskilled labor.

The material is dumped into the low charging end and is carried into the drum by blades in front, as shown in Fig. 2, which extend in 8 to 10 in. In spite of the large opening a considerable quantity of material can be charged without any of it falling out, because the blades in the drum are inclined so as to continually throw it toward the center. At the center is a V-shaped plow, which throws the material to the sides, where it is again acted upon by the blades and returned to be divided by the plow. This action of the plow and blades combined with the revolving of the drum effectively and

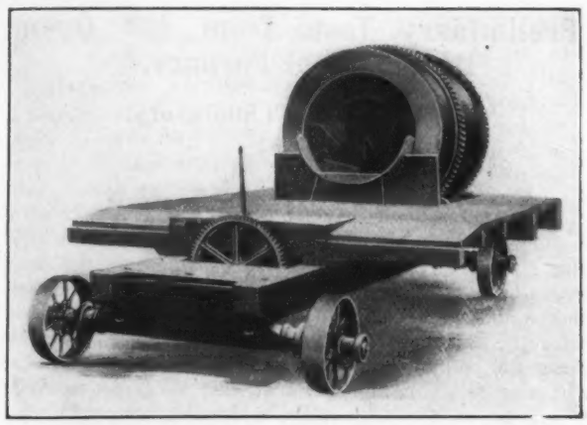


Fig. 2.—The Eclipse Concrete Mixer Ready for Transporting.

thoroughly mixes the material in a very short time.

The drum is made of steel and is surrounded by two gear bands provided with flares for the supporting wheels. These wheels, four in number, take the weight of the drum, and the power for revolving is supplied by two gear wheels on one shaft meshing with the gear band. Power is applied to this shaft from an electric motor, or gasoline or steam engine, as may be desired. The gasoline engine is generally preferred as being the least expensive and most convenient under ordinary conditions. When a gasoline engine is used a friction clutch is placed between the engine and the drum, as may be seen in Figs. 2 and 3.

When the concrete is thoroughly mixed it is discharged by opening the discharge chute, which is operated by a handle at either end of the drum. The chute is ordinarily kept covered by a door that is operated semiautomatically by this lever. When the lever is thrown a strong spring completes the movement and holds the door open. The discharge is rapid and relatively high, so that the concrete can be loaded into barrels, as indicated in Fig. 3. In the discharging, the door, being drawn back across the wall of the drum, acts to lift and facilitates the discharge of the contents through the chute. It is claimed that by this combination of low charging and high and rapid discharging the mixer is capable of making as many as 75 complete finished batches of concrete in an hour. One batch every 45 sec. was obtained in street work in Chicago.

The outfit, as the illustrations indicate, can be mounted on a truck, so that it may be easily hauled from point to point by one horse, enabling the contractor to work on more than one contract at a time. Ordinarily the mixer is mounted to discharge at the rear end of the truck, as these views indicate, which is an advantage when used for street or sidewalk construction. It can, however, be mounted to discharge on one side of the truck if desired. On street work it can be quickly moved by the men on the job using the horse only for the longer hauls. The five sizes of this mixer now on the market have a batch capacity of 7, 10, 15, 20 and 30 cu. ft. each, respectively, or an output of 10, 15, 20, 25 and 36 cu. yd. of concrete per hour, respectively. The power required is respectively 2½, 3½, 5, 7 and 10 hp.

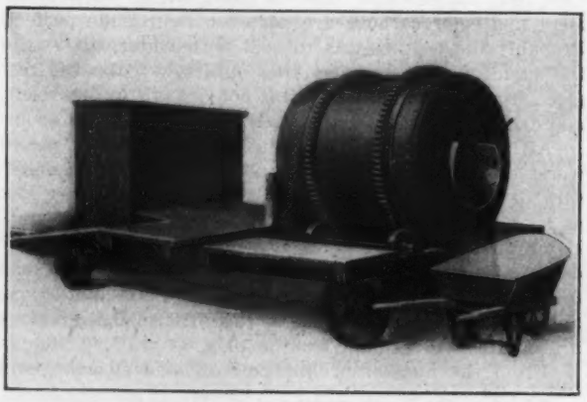


Fig. 3.—The Discharging Side of the Eclipse Concrete Mixer.

Preliminary Tests from the Open Hearth Steel Furnace.*

Practice in the Laboratory.

BY C. W. DANFORTH,† SHARON, PA.

In the manufacture of open hearth steel it is necessary to know the chemical composition of the bath before tapping. Since silicon is eliminated by the time the heat begins to "work," there remain manganese, sulphur, phosphorus and carbon, on which the melter must be satisfied before he can take out his heat. It is obvious that the closer his opinion is to the exact analysis the closer he will come to hitting his specifications. He is not entirely dependent on the laboratory to furnish him with the analyses, but on certain classes of steel he is largely dependent. When laboratory work is required speed has just as much importance as accuracy. It is the purpose of this paper to show how these two necessities can be brought together.

A laboratory determination of manganese is not required, for that constituent may be safely estimated from the working of the heat. It is a function of the following: Basicity of the slag, temperature and time the charge has been melted. The amount of manganese in the cold charge may have a very small influence. In common scrap heats making low carbon low phosphorus steel, manganese is generally down to 17 points as soon as the charge is melted, and will lie between 12 and 6 points when the heat is tapped. In acid practice the manganese is down to three points when the charge is melted.

The Test Pieces.

To determine sulphur, phosphorus and carbon tests must be taken from the furnace. The size and shape of the test piece and the method of cooling have an important bearing on the appearance of the fracture and on the laboratory results. On many open hearth floors are found test molds of different sizes and shapes, and little attention is paid to regularity in taking the test, removing the piece from the mold and cooling. The test mold I find most suitable for both fracture and laboratory furnishes a test piece 5½ x 2 in. at the top, tapering to 5 x 1¾ in. at the bottom, and when nearly full 1½ in. deep. Such a mold should never be poured quite full, as that would hinder in removing the test piece and delay a determination. It is poor practice to pour twice from the spoon in order to get enough sample, as this has an influence on the fracture, and, through carelessness at the laboratory, might have an influence on the analysis.

In order to have comparative fracture tests, the sample should be poured, removed from the mold and cooled every time in the same manner as nearly as possible. Laboratory tests should always be received hot, as in no other way can the chemist be sure of the treatment it will have received. If the test be chilled rapidly in water, drills will be an expensive item and color carbons will be worthless. It cannot be allowed to cool of its own accord because the analysis must be reported in a very few minutes; hence some regular method of cooling must be adopted. In some laboratories an air blast is used, but considerable time is consumed in such treatment and color carbons are not even then made perfect. Probably the best way is to cool with water, always in the same manner and avoiding chilling. Take the test piece from the water while still hot enough to dry itself, and drill with a ⅝-in. drill at 200 rev. per min.

All steel segregates, and in preliminary test pieces worst of all. It may be contended that it is not necessary to furnish the true analysis of the preliminary test as long as the error is always the same from day to day. It may not be always necessary, but it is desirable to be exact. To arrive at the true analysis with due regard for speed, divide the test roughly into four equal parts and drill in the center of one of them till enough drillings are obtained to amount to 8 or 10 g.

From the number of analyses on acid furnace bath tests and their corresponding heat tests, it has been found that, after obtaining a sample as above, 10 per cent. of the sulphur and phosphorus found should be added in order to check closely the heat test. A preliminary test was taken just before tapping an acid heat. Seventeen samples were taken at different depths with a ⅝-in. drill from two holes. The sulphur varied from 0.038 to 0.051; hence the importance of regular drilling. Sulphur segregates most; phosphorus to a less degree, and carbon least of the three.

The Sulphur Determination.

Knowledge of the sulphur content of the bath is the least important. The fracture is useless in this case, and in general there should be no need for a laboratory determination. Close watch should be kept of the sulphur in the pig iron, scrap and coal (when producer gas is the fuel). In acid practice, using good coal, it can be properly assumed that the sulphur in the steel will be a very little higher than in the charge, say, 15 per cent., or about six points; while in the basic furnace, using good gas, the sulphur will be no higher than in the charge. In making pig iron and ore heats the steel sometimes analyses much higher in sulphur than the reported analysis of the pig iron would warrant. I believe that 99 times out of 100 if the true sulphur in the pig iron was determined it would show proper agreement with the sulphur in the steel. The evolution method of determining sulphur in all kinds of pig iron by the use of cold HCl is in many cases very misleading.

For the laboratory determination of preliminary sulphur evolution methods are used entirely, being almost, if not quite, similar to the procedure for regular work The steel is dissolved in HCl acid of various dilutions, and the evolved H_2S caught in an alkaline solution. The absorbing solution is made acid and titrated with iodine. In the Pittsburgh District the use of an ammoniacal solution of $CdCl_2$ is common; also a solution of KOH with ammonia. Thickness of drillings has almost everything to do with the speed of solution. Method of cooling has no effect on the result, but care in cooling enables one to make faster time in drilling.

To report sulphur accurately and in short time, cool the test piece carefully and drill slowly with a fast running drill. A half minute extra spent in drilling may save several minutes in dissolving. Weigh 2½ g. into a 250 Erlenmeyer flask. The stopper holds a straight thistle tube and glass tubing leading into a 9-in. test tube. An absorbing solution of KOH and ammonia containing sufficient starch fills the tube two-thirds full. Pour into the flask enough (1:1) HCl at temperature of 65 degrees C. to make ¾ in. in the bottom. Having the delivery tube in the absorption tube, place the flask on a medium sized argand flame, so as to evolve gas rapidly. The heat must be regulated so as to keep the acid just under the boiling point till the steel is nearly in solution, when the contents of the flask are brought to a vigorous boil, till the horizontal part of the delivery tube is hot. Disconnect; pour the contents of the tube into a dish; fill the tube full of water and pour into the dish; fill the tube one-third full of (1:1) HCl, and add to the dish; titrate with iodine, which gives one point of sulphur per one-tenth cc. Add 10 per cent. to the titrated sulphur and report. The total length of time required from the moment the test piece enters the laboratory need not be more than 12 min. Acid steel will dissolve much faster than very low phosphorus basic, so that in the case of acid steel a report can be guaranteed in less than 10 min. The caustic solution is 2 lb. of Babbit's lye, 1000 cc. of ammonia and 17 g. of wheat starch per large carboy.

The Phosphorus Determination.

When the melter is held to any certain specifications as to phosphorus it becomes the duty of the laboratory to furnish him with the exact analysis of his bath, as his fracture will only indicate whether the phosphorus is unusually high or unusually low. In acid practice it is only guesswork.

There are in use several methods for so-called rapid phosphorus determination—measuring the yellow precipitate in Goetz bulbs, weighing in tarred papers, guessing

* Read at the March meeting of the Pittsburgh Section of the American Chemical Society.

† Chief chemist of the Sharon Steel Hoop Company.

the precipitate, titrating with $KMnO_4$, and titrating by Handy's method. In all cases the wet oxidation of the phosphorus with $KMnO_4$ is employed. The accuracy of all phosphorus determinations by estimation of the yellow precipitate hinges on the solution of molybdic acid used; much more so in the case of very rapid analysis. Where phosphorus is finished by transferring the yellow precipitate to the pyrophosphate, it is possible to arrive at a pretty fair result when using an unstable molybdic reagent, provided a large excess be used. Such a procedure is impracticable in a steel works laboratory. The method of cooling has no influence on the analysis.

Taking into consideration both speed and accuracy, I have found the best results to be attained through the following method:

After obtaining thin drillings, weigh 2½ g. into a 250 Erlenmeyer; add 30 cc. 1.20 HNO_3. After first frothing, place on a strong heat till in solution. Add a little $KMnO_4$ solution and in ½ min. clear up with a solution of sugar. (If $KMnO_4$ is allowed to act longer than necessary to oxidize the phosphorus the reaction with sugar will likewise consume unnecessary time.) Take boiling hot from the heat; squirt in about 10 cc. cold water from a water bottle fitted wih a large tip and a hand pressure bulb; pour in immediately 50 cc. of molybdic, shake vigorously 1 min. and filter on suction; wash rapidly with cold water and titrate paper and all in the original flask by Handy's method; have acid and alkali match, and give a direct reading. Add 10 per cent. to the result to allow for segregation of the test. The total length of time required is never more than 10 min.

The $KMnO_4$ solution for oxidization of the phosphorus is 2½ per cent.; sugar, about 15 per cent. The molybdic, on which the whole success of the determination depends is made in a 3-gal. crock; 3000 strong HNO, 3300 H_2O, and 750 strong ammonia are mixed and allowed to cool. A solution consisting of 500 g. MoO_3 (85 per cent.), 450 H_2O, and 1000 strong ammonia is poured into the first solution while stirring; 3 cc. of 10 per cent. microcosmic salt is added, and the whole allowed to settle 24 hr. The steel solution, being strongly acid, allows a high precipitating temperature (90 degrees) to be safely used. Furthermore, the yellow precipitate formed in this way comes down granular and requires no digestion nor the addition of pulp to be filtered on a paper of common texture. No more precipitate will be deposited after standing 1 hr.

The Carbon Determination.

In making soft steel no laboratory determination of carbon is necessary, as the fracture test and the appearance of the bath may be relied upon. In making the fracture test for carbon it is extremely necessary to use a regular procedure in pouring and cooling. Furthermore, if the phosphorus or sulphur varies much from heat to heat the fracture is misleading. The laboratory determination of carbon is oftenest asked for and is the hardest to give correctly. In the case of carbon, greater care must be exercised that the laboratory receives the test hot, as the least variation in cooling affects the color test. The preliminary color carbons can be at best only comparative results, being so dependent on the standard and the rate of cooling.

There are three general methods for color carbons: 1, weighing standard and sample into test tubes and cooking in a water bath; 2, weighing into tubes and baking in a sand bath; 3, weighing into flasks and boiling on the hot plate. The first method is too slow. The second and third deal with small weights and entail much care in comparing. The second method is apt to be inaccurate, owing to the difficulty in furnishing both standard and sample equal amounts of heat. If the tubes are narrow, they require constant watching to prevent loss of contents, while, if the tubes are wide, danger of unequal temperature is increased. The third method is the best both for speed and accuracy. A good method for color carbons is as follows:

Weigh ½ to 1 g. of standard and sample into 250 cc. boiling flasks of similar size and shape. Use 25 or 30 cc. of 1.20 HNO_3 to dissolve. Place at once on hot plate side by side, where each will receive nearly the same amount of heat, and boil gently. After the steel is in solution boil 1 to 2 min. longer and cool quickly by shaking under the tap. Large comparing tubes with bent ends, 100 to 150 cc. capacity, are used. Low carbons, starting with 1 g. sample, are diluted so that 5 cc. equals one point of carbon. Higher carbons are diluted as much as the capacity of the tubes will allow. A color carbon of 30 or 40 points may be properly made in less than 8 min. from receipt of the test piece.

While it is an easy matter to get very close checks by the color method, one may never be sure of reporting the correct carbon, unless he uses the combustion method. Till recently it has been impossible to get out a reliable combustion in the short time allowed for preliminary analysis, but by direct combustion of the steel drillings the time has been shortened that it is feasible to make use of the more accurate method.

Three years ago the American Chemical Society published a method by James A. Aupperle for titration of BaO_2H_2 with HCl in the presence of $BaCO_3$, as applied to the estimation of carbon in steel. The electric combustion furnace, with Aupperle's method for finishing affords a simple, accurate and rapid means for doing carbon in steel. The modifications I find advantageous are included in the following method:

Weigh 1 g. of thin drillings into a platinum boat which has been lined with white alundum. Draw from a 100 cc. burrette 90 to 95 cc. BaO_2H_2 solution into a 10-bulb Meyer tube and connect the latter into the combustion train. Enter the boat into the quartz tube of a Johnson's electric furnace. Wait ½ min. for boat and contents to become heated through. Turn on the oxygen as fast as the steel will take it up. When the steel is burned, as shown by a more rapid bubbling in the absorption tube, the carbonate will begin to be deposited and the current of oxygen must be carefully slowed down. Practice soon shows where the oxygen may safely be increased again to sweep out speedily the last traces of carbon. Shut off the oxygen, rinse contents of bulb into a tall 400 cc. beaker with boiled water only; add phenolphtalein; run in a small excess of a solution of HCl and finish with BaO_2H_2 from the first burette. The difference between the BaO_2H_2 used and the HCl corresponds to the carbon. A table showing the percentage of carbon on a 1-g. sample corresponding to each ½ cc. of HCl shortens the computation. A combustion carbon may thus be reported in 10 min. from the receipt of the test, as follows:

	Min.
Cooling test, drilling, weighting and putting in tube	2
Burning of drillings	2
Driving out CO_2	4
Finishing	2
Total	10

If through careless drilling a sample fails to ignite, the operator knows it at once and not more than 3 min. need be lost.

BaO_2H_2 is 6 g. per liter; HCl is made to match; about 3 cc. per liter is required. Such solutions will equal about 0.0002 carbon per cc., but had best be standardized by a steel of known content. The BaO_2H_2 must be properly protected from the air, and so also must the burette.

The foregoing methods are reliable enough to be used for regular work. In the laboratory with which I am connected the regular methods differ very little from the methods for preliminaries. In the case of sulphur, the dissolving acid is not warmed and nothing is added to the titrated result. For phosphorus, after precipitating, the flask and contents are required to set 5 min. and not more than 10 in order to allow for an occasional poorly made molybdic solution, and afford time to carry on at the same time a complete steel analysis. Here also nothing is added to the titrated result. With the carbon determination by color, there is no difference. In running combustions the $BaCO_3$ is filtered, burned and weighed.

When the melter misses his specifications it is oftentimes an expensive failure. The open hearth furnace may be left with a heat of steel of odd analysis on its hands, or the lack of a heat of certain expected analysis may mean a delay in the blooming mill. Many such troubles may be avoided by a proper co-operation between the open hearth furnace and the laboratory and insistence on rapid and accurate preliminary analyses.

The Carrier Air Conditioning Process.

The Carrier Air Conditioning Company, which was recently organized with offices in New York City, controls patents on an improved system of air conditioning and purifying, which provides for automatic control of temperature and humidity conditions. The apparatus employed maintains the air in a building at constant temperature and constant humidity regardless of external conditions, or at a constant percentage of relative humidity under variable temperature conditions, in other words, it is equally adapted in humidifying or dehumidifying, as occasion may demand, with conditions always under automatic control. It is possible to maintain any desired percentage of humidity from 20 per cent. as a minimum to 100 per cent. maximum.

To accomplish the object the air is saturated by means of an atomized water spray, and then all free moisture is removed by means of an eliminator of special design. The temperature of the saturated air determines the amount of moisture which will be taken up, and may be placed either above or below the normal dew point of the air entering the apparatus, as desired, through control of the temperature of the recirculating spray water. The control of both relative and absolute humidity is effected by patented automatic devices known as the differential thermostat and the differential hygrostat. The first of these devices depends for its operation upon the relationship between the dew point and dry bulb temperature, while the second depends upon the relationship of wet bulb temperature to dry bulb temperature.

When used in industries for dehumidifying or refrigerating the Carrier system, it is claimed, will do twice the work of previous systems with the same expenditure of power. This is owing to the fact that with a finely divided spray there is practically a perfect transmission of heat, which permits a much higher ammonia temperature with corresponding back pressure and ammonia density, about double those ordinarily used for refrigerating and dehumidifying. This apparatus finds application in furnishing dry air blast to iron furnaces, in gelatine and other low temperature driers, in candy factories, in preparation of photographic films, in lithographing establishments, and for cooling and dehumidifying theaters and other public buildings in summer weather.

As a humidifier, the apparatus is chiefly used in public buildings, in cotton mills, woolen mills, silk mills and in textile industries generally. Fig. 1 shows an installation in the Huguet silk mills, Wayland, N. Y. The application to textile mills is particularly advantageous. Previous systems of humidifying in textile mills have depended upon atomizing water directly in the room and have provided no positive means for ventilation. Owing to the great amount of heat liberated by the spinning and weaving machinery, the mills were often overheated to an unhealthy degree and the distribution of humidity was very unequal. Neither has there previously been provided any suitable means for automatic control, and the degree of humidity depended entirely upon hand regulation, and varied greatly from day to day as soon as conditions changed. The Carrier system has been designed in special reference to obviating these difficulties in a practical manner and is based on scientific principles.

The great amount of heat generated by the machinery in the mill may be dissipated by radiation, by ventilation and by the evaporation of moisture. Frequently in spinning mills, when the windows and doors are tightly closed, the temperature will rise 45 degrees above the outside temperature, so that it is only through the combined effect of evaporation and ventilation that it is possible to obtain satisfactory mill conditions. The Carrier system accomplishes this by introducing saturated

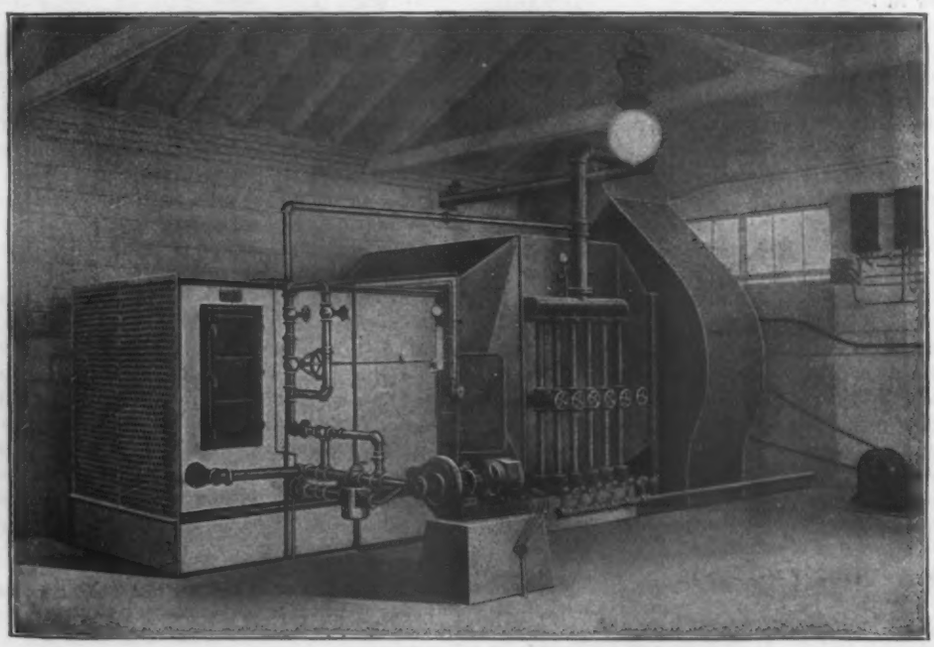


Fig. 1.—Installation of Air Conditioning Equipment in the Huguet Silk Mills.

air into the room, which has been cooled from 10 to 15 degrees by evaporation in the humidifier. This air is always saturated at a constant temperature relation to the room temperature. Every foot of air contains the same number of grains of moisture throughout the room, and the relative humidity is dependent only on variation of temperature. The ventilation is positive and window drafts are avoided.

The whole advantage of this system depends upon the complete and accurate control of all conditions, including temperature, humidity and ventilation, whatever the conditions out of doors may be; in summer it can be applied to cool the space served or in winter to heat it and at the same time maintain the percentage of moisture in the air, or the degree of humidity at any desired value. Using the same apparatus, it humidifies and cools in summer by artificial ventilating with cold saturated air, and humidifies and heats in winter by first saturating the air at the proper temperature, and then heating the air after saturation to a temperature sufficient to maintain the required temperature and humidity conditions in the room.

The apparatus consists of an air washer and humidifier, fan and heater, Fig. 2, and a system of ducts for the distribution of the humidified air. The humidifier consists of a large chamber in which water is atomized under pressure by a large number of cyclone nozzles. One of these in action is shown in Fig. 3. The nozzles

though very effective are simple. The water enters a small circular chamber tangentially, which gives it a whirling or centrifugal action. The outlet or discharge opening is at the axis of rotation. The approach to the discharge opening is conical shaped, so the rotation or whirling speed of the water is greatly increased as it approaches the discharge. The effect of this arrangement is to give a minutely divided or atomized spray which offers an enormous amount of surface for evaporation. It is practically impossible to clog the nozzle with

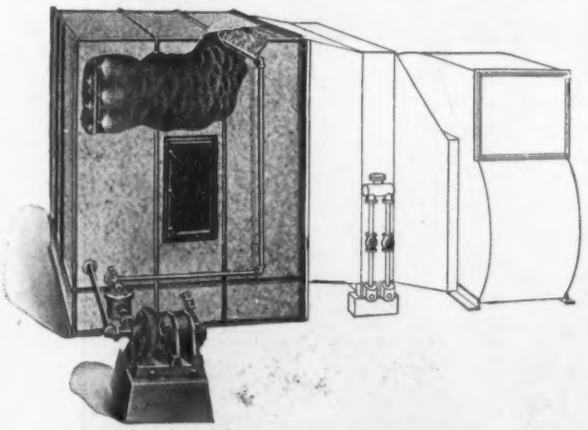


Fig. 2.—The Air Washer and Humidifier.

foreign material, the smallest hole being 3-32 in. diameter, yet it throws a perfectly atomized mist by reason of the centrifugal action.

Although the discharge opening in the nozzles is so large every precaution is taken to remove any lint or dirt from the water before it enters the spray piping. The water passes through two strainers one placed across one end of the settling tank, located under the spray chamber. This strainer offers a very large surface and is made of 16-mesh copper wire screen. The suction connection to the pump is made at the end of the tank so the water must pass through this strainer before entering the pump. Over the top of this suction space,

Fig. 3.—The Action of One of the Spray Nozzles.

formed between the strainer and the end of the tank, is a cover to prevent dirt from falling in as the air passes over it. In the pipe line between the pump and the sprays is a basket strainer of 24-mesh screen in the shape of a bucket, which is easily removed for cleaning. The air drawn through this spray chamber is thus filled with an extremely fine mist in a large volume and thereby brought to the point of saturation.

The free moisture is separated from the air by an eliminator, usually built of galvanized iron and made up of a series of plates evenly placed and set in a vertical position across the discharge end of the spray chamber. Each plate is a single sheet of galvanized iron, so stamped as to form several corrugations, three of which have lips projecting. The plates are held together with galvanized iron angles at top and bottom and at intervals throughout the hight to keep them evenly spaced. All rivets and bolts used are galvanized.

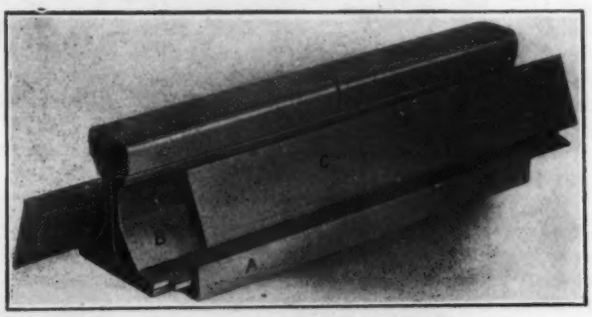
The process of elimination is a double one. The first surfaces are covered with a sheet of running water precipitated from the spray laden air, against which all solid particles impinge and are washed down. The air then passes the corrugations with projecting lips, which prevent the free passage of water across the surface, and the water flows down vertical gutters.

The fan and heater are of the usual design. The air is by-passed around the heater during the summer, thereby avoiding the frictional resistance of the heater.

The Automatic Equipment Rail Joint.

The Automatic Equipment Company, Bridgeport, Conn., is introducing a new means for joining the ends of rails without the use of bolts. These lock rail plates, as they are called, can be applied on old as well as new rails without further preparation than to remove the old style plates. The object of this joint is to make the connections of rails rigid, and at the same time permit expansion and contraction without the loosening of the joint as is now common. Where rails are connected with these plates it is claimed that they are not only locked thoroughly, but are 180 per cent. stronger at the joint than at any other place.

The base plate A, as shown in the illustration, is simply a rest, and receives the ends of the rails, giving a larger bearing surface on the ties. The side plate B bears



Lock Plate Rail Joint Made by the Automatic Equipment Company, Bridgeport, Conn.

against the web, and under the ball of the rail and is diminished in thickness at the lower edge where it rests on top of the base flange, so that when the key C is pushed into position the entire joint becomes locked. Projections on the inside of the plate B fit into the regular bolt holes in the rails, and other projections D at the ends of the plate B, when it is fixed in position, keep the entire joint from moving horizontally. The key C after being forced into place constitutes a wedge with the plate B and locks the entire joint securely. The drawing or pushing of either end of the rails has no effect on the combination.

This new rail joint is declared to be a safety device in the true sense of the word, and capable of saving railroad companies many thousands of dollars. It costs little more than the ordinary fish plates now in use. After it is once installed no attention is necessary until the rails are completely worn out or the ties have become rotten, then the joint will act as a support for the rails. The plates are made for all standard weights of rails.

The condition of the shipbuilding industry, it was stated at the recent annual meeting of Wm. Doxford & Sons, Ltd., in Sunderland, England, is "worse than in generations," for with the prices of steamers lower than have ever before been known, labor and materials are very much higher than in previous slack times. In 1908 the company launched only five steamers, with a gross register of 20,271 tons, against 22 steamers of 91,254 tons in 1907, and 23 steamers of 90,765 tons in 1906. Only four steamers are now in course of construction at its yard.

Reversing Mechanism for Regenerative Furnaces.

Apparatus for reversing open hearth furnaces has been devised by the Blair Engineering Company, 6 Sherman street, Chicago. Its construction and method of operation are interesting. It consists of a swinging section of flue, corresponding to a switch in a railroad track, which makes it possible to secure a continuous flue from the gas producers to the furnace at one end and from the furnace to the stack at the opposite end. It makes possible the reversal of the functions of these flues without any valve. Each flue is completely separated from every other one, and with no partition walls there is no leak between gas and draft flues. The cause of most of the deterioration in reversing valves is thus eliminated. Fig. 1 gives a view of the apparatus looking from the stack toward the furnace. Fig. 2 is a view looking in the opposite direction. Fig. 3 is a plan view showing the flow of the gas in one direction.

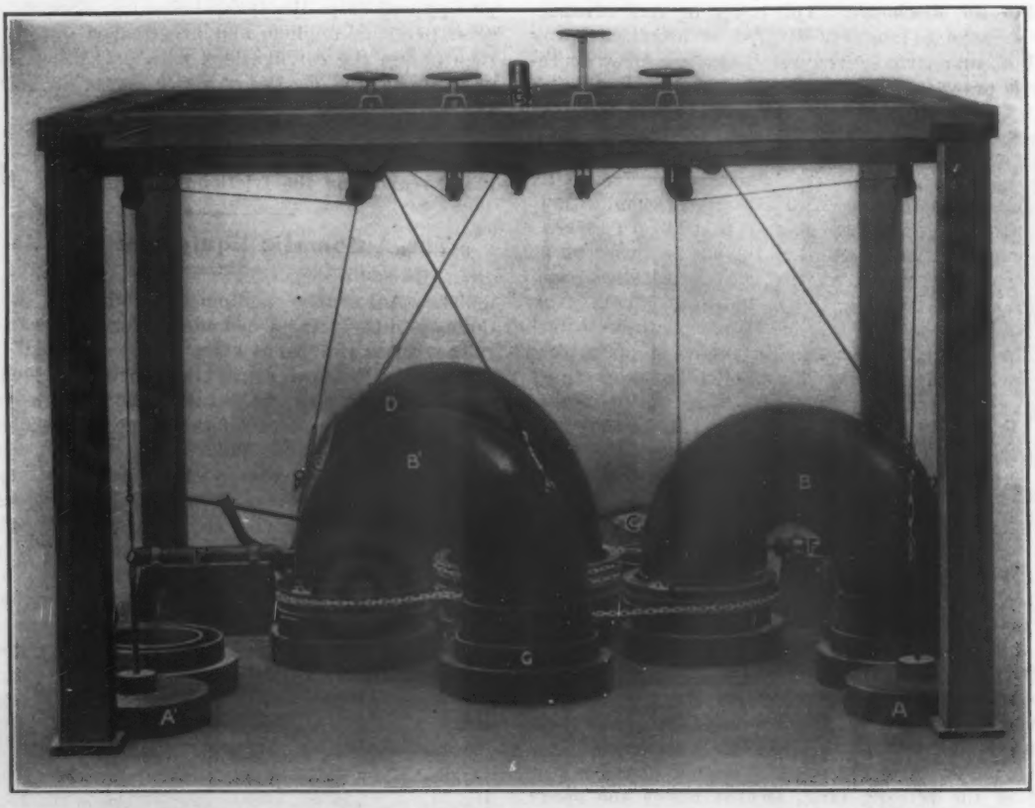


Fig. 1.—View of Reversing Mechanism Looking from the Stack Toward the Furnace—Gas Being Admitted to the Furnace Through the Tube B.

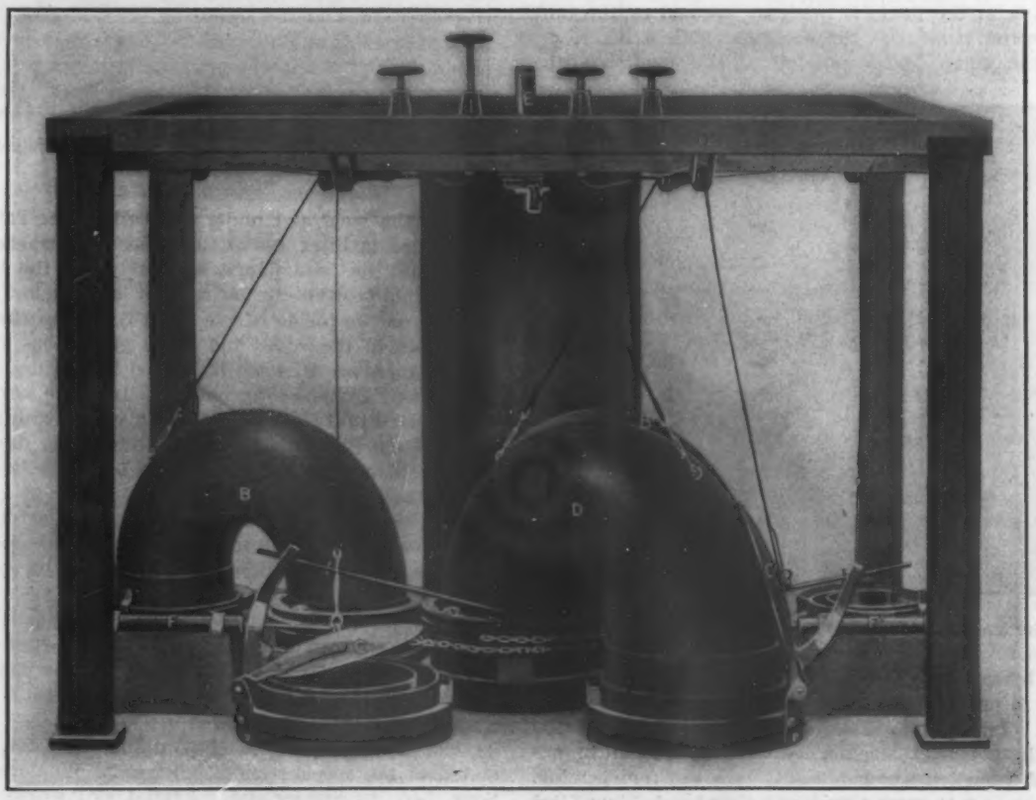


Fig. 2.—View of Reversing Mechanism Looking from Furnace Toward Stack, Showing Air Regulation.

A and A′ are regulating valves for controlling the supply of gas to the furnace. B and B′ are the swinging tubes, constructed of steel plate lined with firebrick

They connect the gas flue with the furnace at one end and connect the opposite end of the furnace with the stack, through water sealed connections at each end of the tubes. The steel plate covers C and C' regulate the supply of air to the furnace. D, a tube similar in construction to the gas tubes, connects the air chamber on the outgoing end of the furnace with the stack. E, F and F' are hydraulic cylinders employed in reversing the mechanism. G is the connection from either gas flue to the stack. The gas comes from the producers to the regulating valves A and A'. In Figs. 1 and 2 A is open, admitting gas to the furnace through the tube B. The air regulating cover C is also open and admits the air to the same end of the furnace. Passing out from the opposite end of the furnace the products of combustion reach the stack through the tubes B' and D. In reversing the furnace the gas regulating valve A is closed by a hydraulic cylinder, which at the end of its stroke releases the valve actuating the cylinder E. This lifts the ends of the tubes B, B' and D out of their water seals. At the end of its stroke the cylinder E opens the valve operating the cylinder F; this swings the three tubes over—B connecting with G, B' connecting with the gas inlet regulated by the valve A' and D connecting the air chamber of which C had been the inlet with the

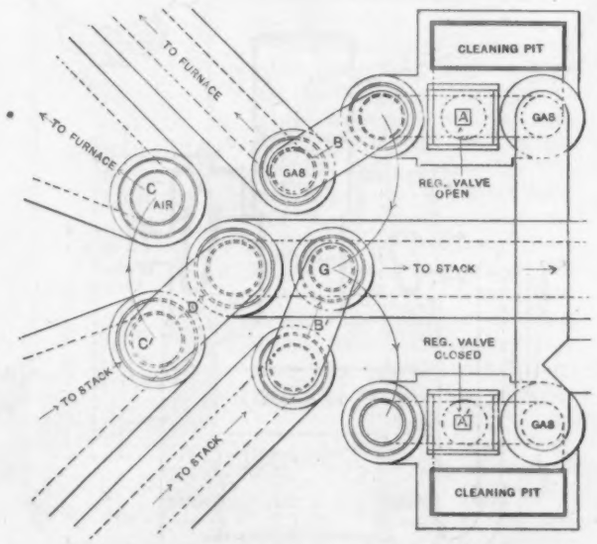


Fig. 3.—Plan View, Showing the Flow of Gas in One Direction.

stack. The gas regulating valve A' is now opened by means of its hydraulic cylinder and the furnace is reversed. The gas and air regulating valves A and A' and C and C' are automatically adjusted at each reversal to the positions they occupied on the previous period of operation on the same end of the furnace. Thus the amounts of gas and air admitted are the same as when the furnace was previously reversed.

When repairs become necessary through accident the gas or air connecting tube is adjusted to become a part of the draft system from the outgoing end of the furnace. If the gas tube is to be repaired or any part of its mechanism, that part is disconnected, breaking the connection through that flue to the stack, which is the same as putting a damper in the flue. The draft then all passes through the air tube to the stack and the furnace continues as usual. When the air flue connection is repaired that flue is disconnected and the draft passes through the gas tube to the stack.

One advantage of the construction shown is the avoidance of leaks of gas or air to the stack or from gas flue to air flue. Another consideration is that the flow of gas to the furnace and of draft to the stack is unobstructed by short turns and the full opening of the flue is effective; further, there is no valve or valve seat in contact with the hot products of combustion to obstruct their flow or to become warped or to receive deposits of soot or hard carbon. Gas is saved in reversing, and it is claimed that much less water is required for cooling than in the case of ordinary reversing valves.

The Conservation of Natural Resources.

Important as a manifestation of the desire of engineers of all professions to further the movement to conserve natural resources was the joint meeting of the American Society of Mechanical Engineers, the American Institute of Mining Engineers, the American Society of Civil Engineers and the American Institute of Electrical Engineers, held in the Engineering Societies' Building, New York City, on the evening of March 24. Four papers were presented, one by a representative of each of the societies. Onward Bates, president of the civil engineers, was to have presided, but was prevented by illness, and James Douglas, a past president of the mining engineers, served in his stead.

For the civil engineers, John R. Freeman, one of the members of the recent Panama Canal Commission, presented a discussion dealing with the conservation of water for municipal and domestic supply, irrigation, navigation, industrial purposes, power and scenery. A particular point made was the undue importance which has been attached to the influence of forests upon stream flow. The lumbering and clearing for agriculture during the past 100 years in the Eastern section of the country have, according to tests on the Merrimac and Hudson rivers, had little effect upon the flow in flood or drought, and probably the same is true in the South Appalachians. What is more important than the removal of lumber for use is the waste of it through forest fires; the speaker favored penalizing the lumbermen who leave tree tops and brush to dry on the ground and invite fire.

The next speaker, Dr. Rossiter W. Raymond, secretary of the mining engineers, doubted the effectiveness of legislation as a means to conservation. As evidence he cited various mistakes which the State and Federal governments have made in the laws they have passed to preserve forests and protect other resources. Prevention of waste and not the prohibition of use is the real meaning of conservation, and laws cannot accomplish it as certainly as educating the people to realize the importance of it and how to accomplish it.

Charles Whiting Baker, editor of the *Engineering News* and member of the mechanical engineers, quoted impressive statistics compiled by the United States Geological Survey, which showed how enormous is our annual loss from fires. In 1907 the value of buildings and their contents destroyed by fire was $215,000,000, 1450 lives were lost and 5650 persons injured. The financial loss due to the interruption of business, maintenance of fire departments, and conduct of fire insurance companies to distribute the loss is not included in this sum, nor are the losses by fires in mines and forests.

The last paper of the evening, "Electricity in the Conservation of Energy," was presented by a member of the American Institute of Electrical Engineers, Lewis B. Stillwell. By quoting results at the plant of the Niagara Falls Power Company, the Northeast Coast Power System at Newcastle-on-Tyne, England, and the Interborough Rapid Transit Company in New York, the speaker showed what a part electricity plays in conserving power resources. The equivalent of the power developed at Niagara Falls furnished by steam would consume 1,000,000 tons of coal. If smaller steam plants had not been replaced by the new large ones in the Northeast Coast Power System the lesser economies would require greater quantities of coal. It is estimated that the supply of electricity to the coal mines of the Northumberland and Durham districts renders available for sale over 1,750,000 tons of coal a year. The train service now handled by electricity by the Interborough Company, if operated by locomotives as formerly on the elevated roads, would consume about 1,000,000 tons of coal more a year than is now necessary. The Inland Waterways Commission's report to the recent Conservation Conference at Washington estimates the water power available in this country at cost comparable with steam operation as 37,000,000 hp., which is more than enough to replace all of the steam power used industrially and for railroads. Every hydraulic horsepower utilized per 10-hr. day saves at least 7½ tons of coal a year.

Keystone Gas Producers.

The series X gas producers made by the Keystone Gas Producer Company, Grove City, Pa., are new only in the embodiment of features of construction that from the standpoint of economy and simplicity commend them for their particular class of service. While quite decidedly radical, these features of construction are consistent with the conditions and requirements of the small

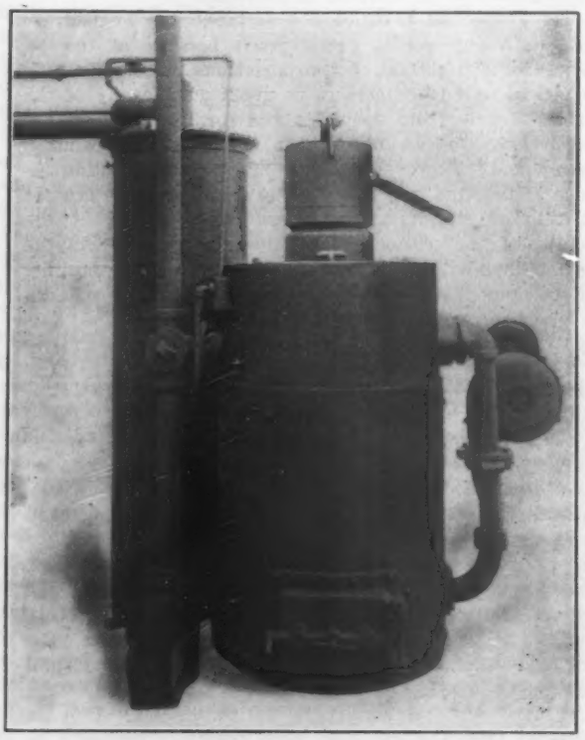


Fig. 1.

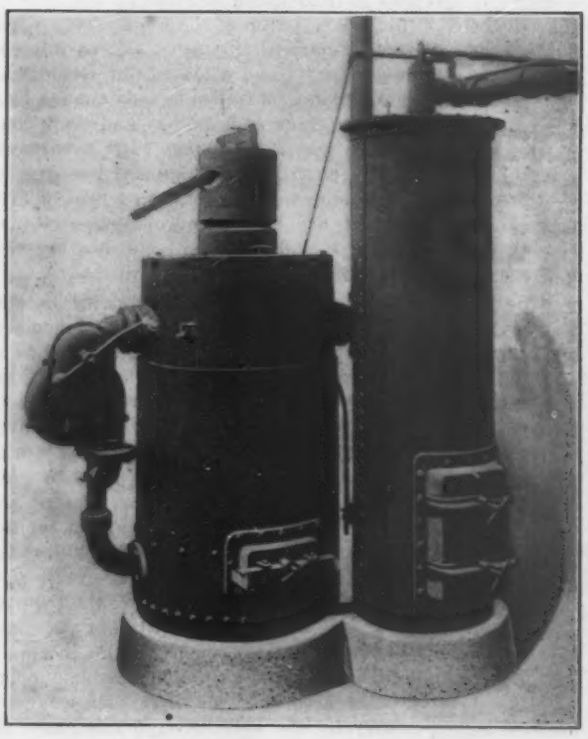


Fig. 2.
Views of Opposite Sides of the Series X Small Gas Producer Built by the Keystone Gas Producer Company, Grove City, Pa.

power consumer. The producers are built in sizes of from 10 to 70 hp., inclusive, and it has been the company's aim to standardize them as far as possible for operating in conjunction with small engines of various makes. Many builders of such engines also manufacture producers, but this company argues that specialization in the two lines is quite as warranted as in the building of steam engines and boilers. That such a condition does not already obtain is largely the result of the first unsuccessful attempts at coupling up producers and engines made by separate builders. This forced some engine builders to manufacture producers. More recently, however, there have been numerous installations of gas equipment furnished by different makers and without discontent or friction upon the part either of the

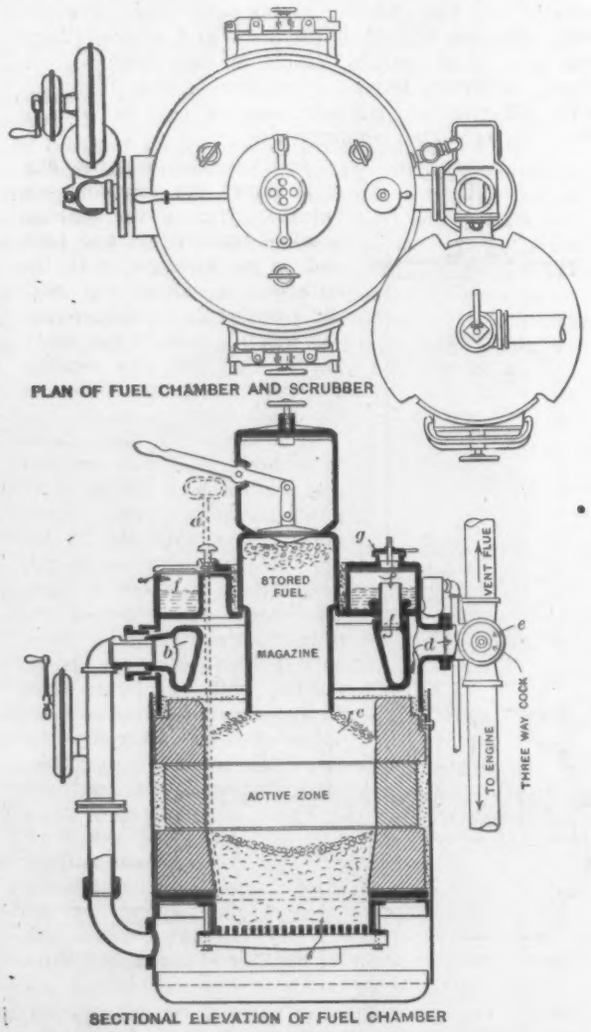


Fig. 3.—Details of the Keystone Gas Producer.

builders or the purchaser. In most cases, to protect the purchaser, engine builders, if they do not buy producer equipment outright, guarantee results and assume the entire contract. That even this necessity will not long prevail is evident from the fact that the less timorous buyers are now making their own selections of what they consider the best equipment, exactly as in the case of boilers and engines.

Figs. 1 and 2 show the two sides of the Keystone series X producer, which indicate the exceptional compactness of arrangement. The producer illustrated has a capacity of 13 hp. and occupies a rectangle of only 4 ft. by 5 ft. 2 in., the net space being, of course, much less.

Fig. 3 shows the fuel chamber in section. Plain bar grates are furnished, as in the illustration, or a water sealed bottom permitting of continuous operation. With the grate construction shown the shells can be shipped with the fire lining already set. The magazine capacity for stored fuel provides for about 5 hr. full load operation without attention, at the end of which time the poke bar *a* should be used and more fuel charged.

It will be seen that the vaporizer is of the superimposed pan type depending upon saturation of the air draft. An additional means, quite simple and ingenious, is provided by which the function of automatic regulation is further carried out by flash vaporization of water

in the preheater *b*. This is entirely automatic, involving no mechanical movements and no flow of water through restricted orifices which are likely to become clogged and require attention.

The arrangement of the comparatively large volume of draft in the path of the hottest outgoing gases gives a very efficient recovery of sensible heat, which would otherwise be lost. The gas leaving the fuel at *c* passes outward at *d* to a three-way cock, *e*, which can only communicate with the atmosphere and fuel chamber, or the scrubber and fuel chamber at the same time. The primary admission of draft to the fire is at *f*, with auxiliary admission at *g*, and by means of this auxiliary admission different degrees of saturation and, therefore, gases differing in hydrogen content can be had to suit differing engine requirements.

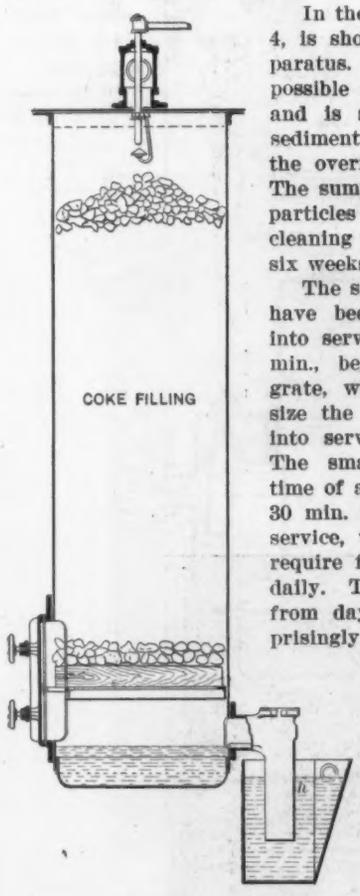


Fig. 4.—Sectional View of the Scrubber.

In the section drawing, Fig. 4, is shown the scrubbing apparatus. It is of the simplest possible construction and form and is so arranged that the sediment is carried out with the overflowing cooling water. The sump *h* collects the heavy particles of dust and requires cleaning at intervals of four to six weeks only.

The smallest of these plants have been fired and brought into service in a period of 14 min., beginning with a bare grate, while with the 70 hp. size the time required to put into service is about 45 min. The small size requires the time of an attendant for about 30 min. for about each 24 hr. service, while the larger sizes require from 45 min. to 1 hr. daily. The producers lay over from day to day with a surprisingly small fuel consumption, and the fires may be run from year to year without removal or rebuilding, except for extreme requirements for repairs. The cost of maintenance and repairs will, undoubtedly, not exceed 5 per cent. of the investment and the makers guarantee a saving to be effected in fuel consumption which will equal or exceed two-thirds the cost of equal power from gasoline or illuminating gas. These producers are the result of a long studied effort to bring such a producer within reach of the small consumer with reference to cost of the apparatus isstalled.

A Pennsylvania Tax Commission.

HARRISBURG, PA., April 5, 1909.—A general revision of the laws of Pennsylvania governing taxation of corporations is proposed by a resolution which has been passed by both Houses of the Legislature and awaits the approval of the Governor. It is understood that it will be signed, and that the commission provided for will begin its work this summer. The resolution creating the commission was presented by Representative James F. Woodward of McKeesport, Allegheny County, chairman of the House Appropriations Committee, who said in offering it that it was apparent that the State would require more revenue if it was to keep on appropriating millions to charities and to public works.

Under the terms of the resolution a commission of six, consisting of three Senators and three Representatives, is to be created to study the subject of corporations and revenue and the practical workings of the present revenue laws, as well as those contained in bills presented to the Legislature on the same topic. The commission is to report to the Legislature of 1911, together with a draft of a proposed law or laws to remedy defects, if any are found in the present statutes. The commission's chairman is vested with rather unusual power, being authorized to issue subpœnas to compel the attendance of officials and shareholders of corporations and to compel the production before the commission of the books and papers of companies doing business in the State.

The subject of taxation has agitated this Legislature more than any one in recent years because of the demands for $80,000,000 of appropriations, with only $47,000,000 in round numbers to be given out. Many of the demands came from hospitals and for like projects for which there was no justification and which the committee rejected. However, there is much dissatisfaction because of the cuts which had to be made, and the cry for taxation of manufacturing corporations, heard at the opening of the session, has again been raised. As the next 10 days will see the close of the Legislature, nothing will be done this year. In the two years which will intervene before the next session the subject can be thoroughly gone into. A. B. H.

Electric Welding of Street Railroad Rails.

British engineering papers refer to a process for the electric welding of street railroad rails, as developed by J. Lord, Birmingham, England. It is described as substantially the Thomson process of electric welding combined with the process of fusion welding, and rails by the use of this method can be welded together in position on the track. It is not necessary to raise the metal to a welding temperature—2737 degrees F.—the temperature required being about 2100 degrees F. This lower temperature eliminates the risk of burning the steel. Around the adjacent ends of the rails to be welded is placed the lower half of a steel box in which a composition is rammed. Over the top of the joint between the two rails is placed a piece of copper; the whole is then entirely covered with the composition and inclosed with the top half of the steel box. On each side of the box the rails are held by a pair of heavy copper clamps. Each pair of clamps forms a terminal of the secondary winding of a transformer, the winding being formed of one massive turn of copper. The switch is placed in the primary circuit, alternating current being employed. When the switch is closed a strong current is caused to flow across the welding points which are raised to white heat, but the current can be regulated to give any desired temperature.

It is said that the gas formed by the heating of the composition, combined with the high temperature at the joint, causes the copper to run, the fluid copper molecularly interpenetrating the two rails. The joint is referred to as a true weld and not merely adhesion, and it is stated that any iron or copper oxides on the surface are reduced to metallic iron and copper, respectively, by the CO gas given off by the composition. The power may be taken from the trolley wire and converted from direct current to alternating current by a rotary converter. The time required to make the weld is from 15 to 25 min. The experiments in connection with the new process have been carried out by the British Insulated & Helsby Cables, Ltd.

In answer to the objection that if track were made continuous there would be buckling of the rails in case it became necessary to take up the surrounding paving or that contraction and expansion of the rails would damage the paving, it is said that experience shows that such rails are practically immovable. The differences in temperature merely change the molecular condition and the stresses in the rail. Variation of temperature is not a serious factor in street railroad work, owing to the rails being entirely covered in by paving, which is more or less a nonconductor of heat.

The effort to combine the large marine engine building firms of the northeast coast of England has been abandoned. Richardsons, Westgarth & Co., Ltd., one of the companies in question, has closed down one of its three plants, to concentrate operations on the other two.

The Hanna Portable Mold Drier.

A means in foundry work to cheapen the cost of production by saving time, energy and material is the portable mold drier made by the Hanna Engineering Works, Chicago, Ill. The drier consists simply of a furnace chamber and a distributing pipe through which the heated air is driven. The body of the drier is made of gray iron castings provided with a lining of split fire-brick, all joints being securely closed with clay. A rocking grate which is also removable is fitted in the bottom of the combustion chamber, which is about on line with the top of the ash pit door seen in Fig. 1. Coke is charged from the top, which is covered by a hinged lid raised and lowered by a projecting lever. Air blast is introduced either above or below the fire, as may be desired, its course being controlled by two dampers.

In starting, blast to the fire is admitted through the lower damper and when thoroughly burning the air current is shifted to the combustion chamber, whence the heat is carried into the distributer and through connecting pipes to all the interior parts of the mold. These connecting pipes are inserted in holes provided in the bottom of the distributer and sealed with clay. Similar air tight connections are made by means of ordinary fittings at the mold openings.

Sufficient air for the operation of the drier is furnished by a 12-in. motor driven fan, either direct or alternating current, of 1-5 hp. capacity, the current for which can be supplied from an ordinary lamp socket on a lighting circuit. The fan and motor are bolted to the furnace casting, so that the entire equipment is self-contained, and by means of side lugs or handles near the top the drier can be conveniently lifted with a crane for transfer about the shop. The weight of the drier is 1850 lb.

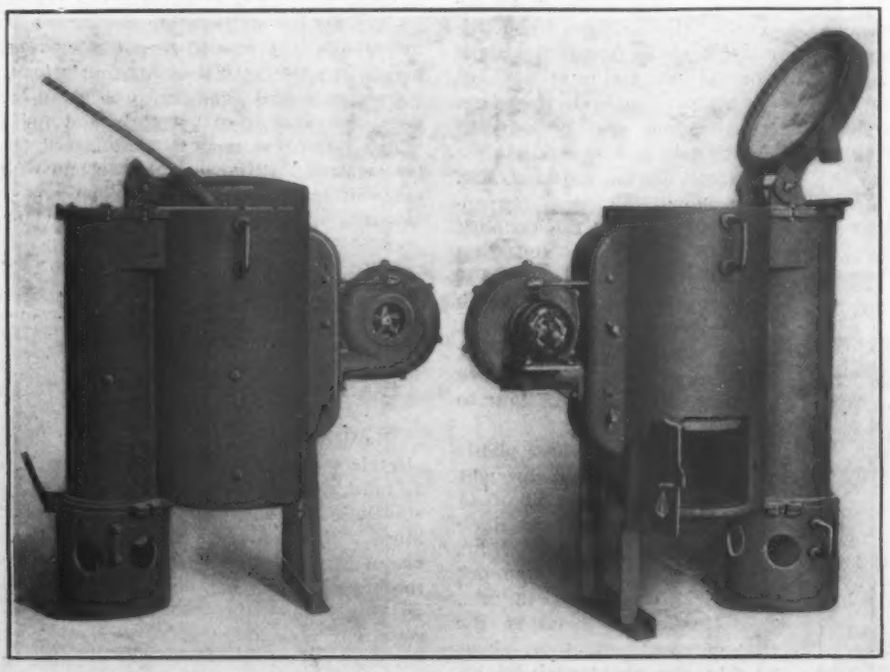


Fig. 1.—Two Views of the Portable Mold Drier Made by the Hanna Engineering Works, Chicago, Ill.

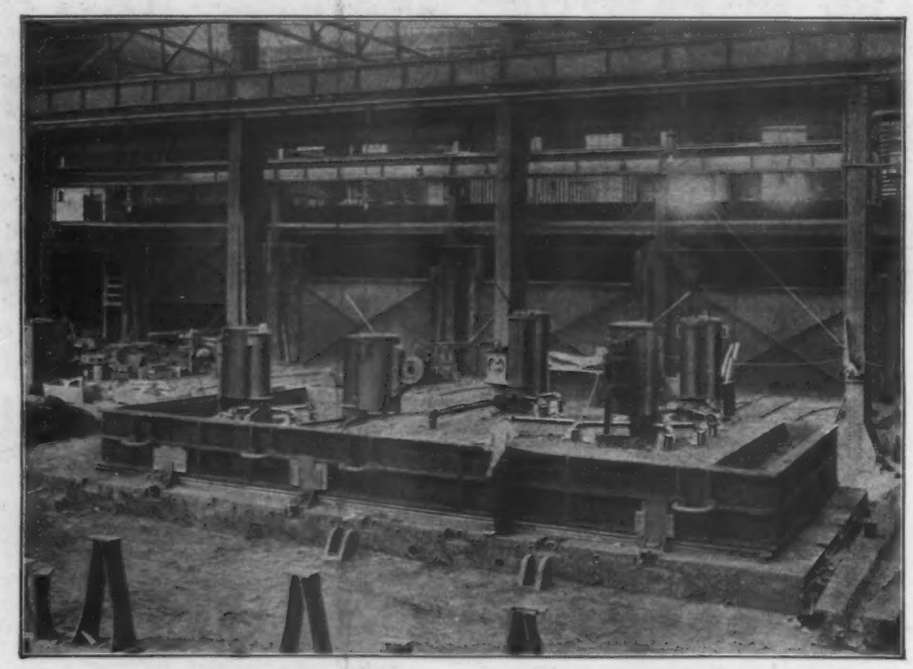


Fig. 2.—Hanna Portable Mold Driers in Use.

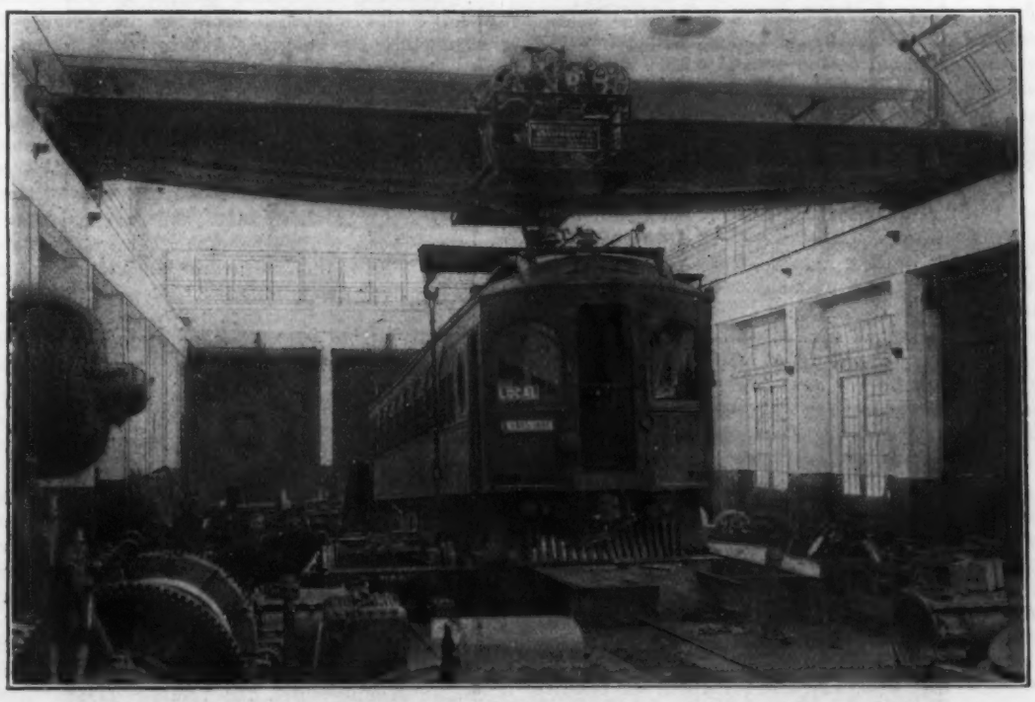
The time required for drying a mold depends upon its size and the limit of time within which it is required for use; on large molds one or more driers may be used, thus hastening the process. One drier of this kind, it is claimed, will dry a mold for a 9000-lb. casting in 10 hr., with a consumption of 400 lb. of coke. In one instance a mold 27 ft. long, 9 ft. deep and 11 ft. wide for a 92-ton casting was dried with five driers running continuously for 60 hr. and burning 4500 lb. of coke. The fuel cost is economized by the use of refuse coke from bins and

cores, which, it is stated, may be used almost entirely when available.

A Whiting Electric Railroad Repair Shop Crane.

When designing the new car repair shops of the Washington, Baltimore & Annapolis Electric Railway at Academy Junction, Md., the Roberts & Abbott Company, Cleveland, Ohio, provided for installing an electric traveling crane to be used first in setting the new shop machinery and later to handle car bodies and heavy running gear parts. The illustration shows the crane supporting one end of a car body by means of a yoke; the car had been placed with one truck standing on a small transfer table so that on raising the car body the truck could be readily run out to one side, and, if desired, either into the blacksmith shop or to the tracks outside the building.

The crane is of the box girder type, with a main hoist capacity of 15 tons and an auxiliary hoist of 6 tons. Its span is 42 ft. The hoisting speed of the main hook is 13 ft. per minute, and of the auxiliary hook 50 ft. per minute. The bridge travel is 200 ft. per minute, and the trolley travel 120 ft. per minute. For the main hoist there is a 20-hp. motor and for the auxiliary hoist one of 15 hp. The bridge travel motor is also 15 hp., and the trolley motor is 3½ hp. These are Westinghouse type K, 550-volt direct current motors. The controllers are types G-3 and V, made by the Electric Controller & Mfg. Company, Cleveland, Ohio.



A Whiting Crane as Used in the Car Repair Shop of the Washington, Baltimore & Annapolis Railway.

On the pilasters on both sides of the shop are brackets with pin bearings for supporting small wall cranes. By using the electric crane to place a wall crane on any pilaster where needed a few wall cranes answer for the entire shop. As ordinarily constructed the operator's cage of an overhead crane is placed below it at one side of the girder near the runway. On this crane such an arrangement would interfere with the wall cranes. The cage is therefore placed, as shown, at the center of the span and at a hight sufficient to clear cars when lifted as high as is ever necessary.

The transfer table, while strong enough to sustain a completely equipped car when rolled across it, is required to move only the heavy trucks. The table is operated by hand power, the necessary travel being short. Both the crane and transfer table were designed, manufactured and erected by the Whiting Foundry Equipment Company, Chicago, Ill.

The building is of reinforced concrete, with brick curtain walls, and is 256 ft. 8 in. x 83 ft. 7 in. The lighting is exceptionally good, and the heating is afforded by a fan system with ducts under the floors. Automatic sprinklers provide fire protection.

The Coming Mechanical Engineers' Convention.

The programme for the spring meeting of the American Society of Mechanical Engineers, at Washington, D. C., promises one of the most interesting meetings that has been held by the society for some time, and represents diligent work on the part of the local committee, headed by Walter A. McFarland. From the following outline of the events arranged for, it is evident that those who attend it will enjoy some unusual privileges:

Tuesday, May 4, 8.15 p.m.

Informal reception at the New Willard Hotel.

Address of welcome by Hon. Henry B. F. Macfarland, president of the Board of District Commissioners.

Response by Jesse M. Smith, president of the society.

Wednesday, May 5.

Professional session at 9.15 a.m.

Sight-seeing automobile trips about the city at 10 a.m. for the ladies.

Reception of members and their guests by the President of the United States in the East Room of the White House at 2.30 p.m.

Trips to nearby points of interest at 4 p.m.

Illustrated lecture by F. H. Newell, director of Reclamation Service on "Home Making in the Arid Regions," at 8.15 p.m.

Thursday, May 6.

Short professional session at 9.15 a.m.

Trips for the ladies to points of interest in and about the city at 9.15 a.m.

Special exhibition drill by troops at Fort Myer at 2.00 p.m.

Social reunion. Address by Rear-Admiral Melville on "The Engineer in the Navy," at 8.15, to be followed by presentation to the National Gallery of a portrait of Rear-Admiral Melville, with acceptance by Dr. C. D. Wolcott, secretary of the Smithsonian Institution, representing the nation.

Friday, May 7.

Professional session at 9.15 p.m.

The illustrated lecture by F. H. Newell and the address by Rear-Admiral Melville, past president of the society, are both on subjects with which their speakers are peculiarly familiar. The prospect of hearing these and witnessing two exhibition drills of the United States troops, with a possibility of an ascension of a dirigible ballon and an aeroplane, the reception by President Taft, and the fact that Congress will be in session at that time combine to make it extremely probable that there will be an unusually large attendance of members and guests of the society.

The Sloss-Sheffield Steel & Iron Company.

The Sloss-Sheffield Steel & Iron Company reports for the fiscal year ended November 30, 1908, as follows, in comparison with the previous year:

	1908.		Changes.
Gross sales and other income	$5,536,811	Dec.	$1,117,492
Operating expense, taxes and maintenance	4,241,056	Dec.	590,401
Net earnings	$1,295,755	Dec.	$527,091
Fixed charges	210,000		.....
Balance	$1,085,755	Dec.	$527,091
Depreciation	121,795	Dec.	11,388
Balance	$963,960	Dec.	$515,703
Preferred dividend (7 per cent.)	469,000		.....
Balance	$494,960	Dec.	$515,703
Common dividend (4¼ per cent.)	425,000	Dec.	75,000
Surplus	$69,960	Dec.	$440,703
Previous surplus	3,146,386		.....
P. and L. surplus	$3,216,346	Inc.	$54,766

Dividends on the common stock in 1907 were at the rate of 5 per cent.

President J. C. Maben, in his accompanying remarks, says that the late fiscal period opened with a discouraging gloomy outlook, following close upon the heels of the acute panic in October, 1907, and serious fears were entertained of a demoralization in the steel and iron trade that might prove disastrous to many. There was a speedy and violent reaction, which caused the cancellation and postponement of orders for shipment of iron previously bought, which, together with no new business offering, quickly resulted in putting furnaces out of blast and soon the production of iron was reduced over 50 per cent. As emphasizing the great depression in the iron trade, it may be stated that so far as can be recalled, this was the first time that this company, or its predecessor, the Sloss Iron & Steel Company, in a period of 20 years, had ever felt it best to put a furnace out of blast owing to the state of the iron market.

The company began the year with an accumulation of over 40,000 tons of iron on its furnace yards and, notwithstanding that four of the seven furnaces were idle, its make for the first quarter exceeded the shipments by over 33,000 tons. In pursuance of the policy adopted generally by the furnace companies throughout the country to endeavor to limit production to about the consumptive demand, the company closed down three of its furnaces the last of November, 1907, to be followed by the fourth a little later, and they remained idle for about six months. Notwithstanding that so large a percentage of its furnace capacity was idle for so long a period, it produced within less than 15,000 tons as much iron as the output in the previous year, which is accounted for by the improved railroad transportation of raw material, more efficient labor, which had become greatly demoralized prior to the panic, and the good condition of the furnaces. The production of the country shows a falling off of over 10,000,000 tons as compared with 1907, or in round figures of about 40 per cent. of the previous year's make, while this company showed a decrease of less than 5 per cent. The consumption of coal by the railroads was materially curtailed during the year, causing a reduction in revenue to the company from that source.

During the latter part of the second quarter there was some improvement in the demand for iron, and fires were lighted in the fourth furnace, but it was well into the fourth quarter before prospects ahead warranted starting up the fifth furnace. At the close of the fiscal year 71 per cent. of the company's furnace capacity was at work, one furnace still remaining idle, while another was undergoing extensive repairs.

Considering how discouraging the outlook for business was at the beginning of the year, the financial results for the fiscal period were highly gratifying. Net profits showed a marked increase each quarter over the preceding one, and the final results permitted the payment of the full 7 per cent. preferred stock dividend and 4¼ per cent. on the junior issue, and at the same time leave a small surplus, with the company entirely free from floating debt.

The average price at which iron was delivered during the year was $3.93 per ton lower than in 1907, which alone caused a reduction in profits of over $1,250,000. The working capital of the company on November 30 last, with all inventories made up at the cost of production, was $2,035,562, an increase of $143,000.

With the exception of No. 3 furnace, which is now undergoing repairs, all the company's furnaces are in good working condition. The time the furnaces were out of blast during the year aggregated something over 36 months or equal to three furnaces for a year.

Another adverse condition with which the company, in common with others of the State, had to contend during the past year, was the strike among its coal miners, which, while lasting but about two months, was fierce, and many outrages were committed and proved expensive to both sides. The strike, which was declared in July, was called off in September, and now about 95 per cent. of the mines of the State are working on the open shop basis. The producing capacity of the Sloss-Sheffield's mines is in excess of all the requirements for company purposes and for filling contracts with railroads for steam coal. Notwithstanding the unfavorable conditions with which the company had to contend, the output of coal during the last fiscal year was not greatly below that of 1907 and was in excess of 1906. No important new work was undertaken at any of the coal mines during the year, and large sums had been expended for improvements at the principal mines in the two years previous. There was a material reduction in the average cost of coal produced last year as compared with the previous year.

Notwithstanding unfavorable conditions during the fiscal period, the production of brown ore for the year shows an increase of 43,000 tons over 1907, with a decrease in cost of 20 cents a ton.

The Heavy Increase in General Imports.

The February report of the Bureau of Statistics of the Department of Commerce and Labor being at hand, we are enabled to learn some of the details of the heavy import movement in that month. It is noteworthy that the great increase was principally in "crude materials for use in manufacturing" and in "manufactures for further use in manufacturing." The imports of "crude materials for use in manufacturing," free of duty, reached a value of $32,132,643, against $19,605,479 in February, 1908, thus showing an increase of 39 per cent. "Manufactures for further use in manufacturing," free of duty, totaled $6,713,528, against $3,952,083 in February, 1908, which is an increase of over 40 per cent. In the dutiable list "crude materials for use in manufacturing" reached a value of $12,731,356, against $7,453,949 in February, 1908, or over 40 per cent. increase, while "manufactures for further use in manufacturing" reached a value of $10,070,699, against $5,914,679 in February, 1908, also over 40 per cent. increase. The value of imports of "manufactures ready for consumption" showed only a slight gain over February of last year.

It is noteworthy that for the first time in the history of the port of New York the appraised value of foreign merchandise entered at that port during any single month reached $87,997,387.42 in March. The increase over February is approximately $21,000,000. Appraiser George W. Wanmaker states that conspicuous increases were made in hides, rubber, precious stones, silks, cottons, furs, woolens, drugs, chemicals, sugar, metals, coffee, tea and cigars, in comparison with the corresponding month of last year. His statement shows that the March imports of the entire country must have been unusually heavy. It is his opinion that the increased entries for March were not due to the pending revision of the tariff, as it is uncertain whether any given schedule in the Payne bill will be retained. Importers had simply allowed their stocks to become greatly depleted, and with the return of prosperity an unusual demand exists for foreign goods of all kinds.

The Alabama Consolidated Coal & Iron Company.

From the preliminary report of President J. H. Hoadley of the Alabama Consolidated Coal & Iron Company for the fiscal year ending October 31, 1908, the following extracts are taken:

The fiscal year 1908 has been one of dull times and the conditions prove the justification of the large expenditures which the company made for improvements in 1907. During the year pig iron dropped from $19 and $20 per ton to as low as $11, and some sales were made at a still lower figure. At the time of the panic we had orders on our books for 45,000 tons of pig iron at high prices, but owing to the general cessation of work throughout the country, these orders were held up or cancelled. Our other products, coal and coke, were similarly affected by the trade conditions. As a result of the conditions we were forced to shut down all our mines and the four blast furnaces in November and December, 1907.

At the time of closing our coal mines the cost of mining coal, which enters into the cost of coke, made the cost of the latter, delivered at our furnaces, far too excessive to justify the operation of the furnaces at the then prevailing prices of pig iron. The company, under the provisions of the contract existing with the miners, and only after the miners had refused a commensurate price for their labor, declared for the open shop. The declaration for open shop resulted in a local strike at our coal mines which affected our output for several months after operations were resumed.

Business conditions improving, we started the Lewisburg coal mine in January, and also one blast furnace at Ironaton, but even the operation of these two plants was carried on in the face of the additional discouragement of the strike. Shortly afterward Searles coal mine was started and a second furnace was blown in at Ironaton. It took about three months to get the coal mines up to normal conditions. The demand for pig iron improved but prices advanced but little. However, the general business conditions being more favorable, about April 1, 1908, blast furnace No. 1, at Gadsden, was blown in.

Our successful operations for the months of March, April, May and June, 1908, which we hoped and had every reason to expect, would extend throughout the balance of the year, were further interrupted in July by a violent miners' strike which affected the whole of the Birmingham district. At the end of 60 days the miners declared the strike off.

The output of the mines and coke ovens during the strike period was very small. To operate the blast furnaces it was necessary to buy large quantities of coke from Virginia and other points. The price of these commodities delivered at the furnaces was almost prohibitive, but it was decided that it was better to operate the furnaces for awhile under adverse conditions than to shut them down entirely.

In the midst of the strike we were confronted with a severe drought at Ironaton, reported to have been the worst one for many years. On account of the scarcity of water at times only one washer out of six could be operated. This necessitated our buying quantities of brown ore at much expense, contributing another element to the unfavorable outcome of the year's work.

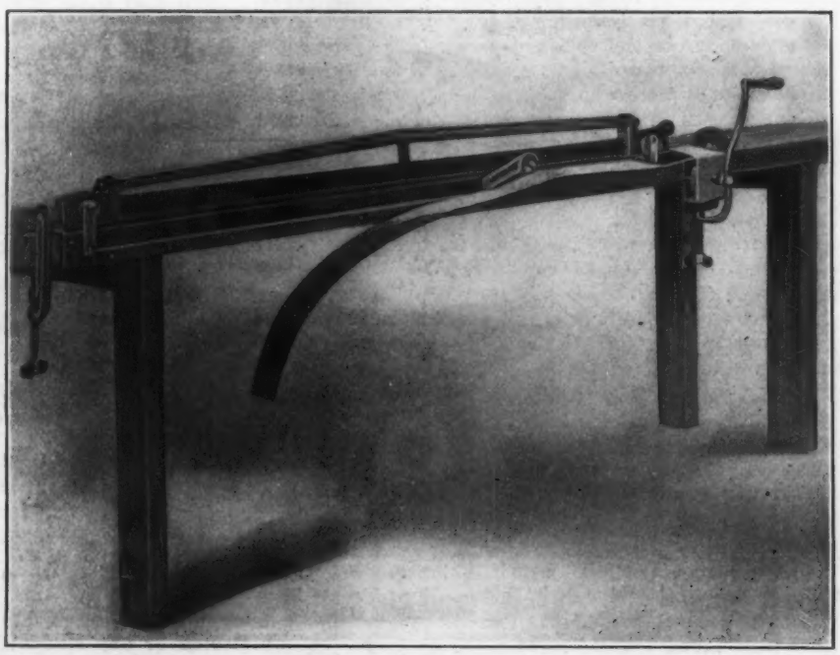
To sum up, the earnings from all sources amounted to $108,381.32, but after paying the interest on the bonded indebtedness, $113,179.15, the deficit for the year is $4,797.83. Considering the far-reaching effects of the panic and the serious strikes, the result for 1908 should be regarded as favorable.

The gross business and earnings have been as follows for the fiscal years 1905-1908, inclusive:

	Output of iron. Tons.	Output of coal. Tons.	Total iron sales.	Net earnings.*
1905	118,829	642,230	$1,623,446.26	$559,460.90
1906	119,691	664,648	1,772,485.99	497,978.78
1907	120,020	704,179	2,236,953.23	657,985.89
1908	117,841	471,289	1,563,748.29	108,381.32

The Ryerson Rotary Squaring Shear.

A distinctly new and novel type of sheet metal squaring shear just brought out by Joseph T. Ryerson & Son, Chicago, is especially adapted to the requirements of small shops not in position to install the usual equipment required for this work. A general idea of the form, construction and method of operation is afforded by the accompanying illustration. The body of the shear is composed of an angle iron base to which is attached a top section which constitutes a clamp for holding in position the sheet to be cut. The clamp is raised and lowered by an eccentric lever at each end, and though of light construction, is firm and rigid.



A Squaring Shear with Rotary Cutters Made by Joseph T. Ryerson & Son, Chicago, Ill.

Rotary cutters by which the shearing cut is made are mounted in a sliding carriage which travels along a way provided on the base of the machine. The rear of the carriage is offset at an angle sufficient to spread the cut portion of the sheet and secure clearance for the cutter. The carriage is attached to a steel band, which being wound upon a drum actuated by a crank lever draws it forward, making a steady, even cut. The travel of the blades is facilitated and their cutting power increased by the opposite rotation which this movement produces.

The machine is built to shear a sheet 10 ft. in length, of any width, and of thickness up to and including No. 20 gauge. It is fastened to a bench or table by ordinary clamps, which, since it is self-contained, are easily sufficient to secure and hold it in place. It is claimed that the alignment of the cutter is absolutely true, and that the edge of the sheet after shearing presents a clean, straight, burrless edge. By means of an adjustable gauge, sheets may be accurately cut on a slant or bias. The entire machine weighing but 200 lb., makes it easily portable and especially adapted to outside work, where it may be set up either on a table or bench. Much of the hand shearing necessary in connection with cornice and other sheet metal work may be done with this tool on the job.

The Wing-Horton Mailing Machine.

The mailing machine shown in Fig. 1, known as the Wing-Horton, is an improvement on the Horton machine which has been in use for a number of years in establishments where mail in large quantities is addressed to individuals. Its manufacturer, Chauncey Wing, Greenfield, Mass., has sought to eliminate what might be termed the weaknesses of the older model, especially any tendency to wear and to loss of adjustment of the shear blades, and to make it easier for a person of ordinary mechanical skill and judgment to secure correct adjustment. It is an essential feature of the successful mailing machine that the cutting blades maintain their adjustment of shear angle and of contact; when blades refuse to work properly a machine may be a source of serious annoyance, or loss of time when it can be least afforded, while getting off mail matter. The designer has striven to remove all liability to such happenings.

The new mailing machine, like its predecessor, consists of a boxlike frame having at its bottom, in front, a receptacle known as the paste dish containing the means of surfacing with adhesive material the under side of the paper strip upon which is printed the mailing list; a feed mechanism for the strip; a rocker plate beneath the frame the function of which is to operate the cutting knife and paster, and the blade mechanism itself. In the paste dish is a wooden roller over which the mailing list passes, its alignment maintained by brass guides to fluted brass feed rolls. The operator, grasping the handle at the top of the machine, raises it for a new piece of mailing matter, and at the same time turns the thumb roll in front of the handle, which operates the feed rolls through a train of brass gearing, placing in position for cutting and pasting the section of the list containing the next address. As the paper leaves the paste dish it passes over a serrated edge which removes the superfluous adhesive, only enough remaining on the paper to insure fixing it. The rocker plate is hinged to the frame, and is held in the position as shown, at a wide angle with the bottom of the frame, by means of a spring until the operator presses down for the cutting and pasting. Its edge is always parallel to the flat under surface of the frame.

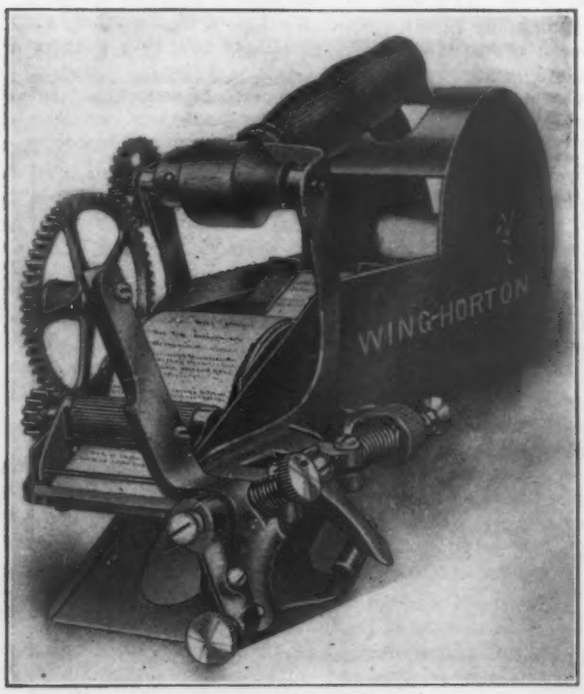


Fig. 1.—An Improved Machine for Affixing Address Pasters to Mail Matter, Made by Chauncey Wing, Greenfield, Mass.

Essential changes have been made in the knife bar shaft and the means of operating and adjusting the blade. In place of a single bearing the shaft has a double bearing, which must decrease the wear. This is an important feature. The shaft must be held without play, for if it is loose the motion is transmitted to the movable blade, destroying its accuracy of adjustment. The adjustment of the bearings for any possible wear is provided for by two accessible screws. The knife is operated by a finger lever, which comes in contact with an arm projecting from the rocker plate. When the operator presses down the movement of the finger causes the knife bar shaft to rotate, bringing the knife in contact with the fixed blade, shearing the strip and bringing the paster against the severed section which presses it upon the piece of mail matter. The lever finger is located between the two bearings instead of at the end of the shaft, as before. The action is direct from the rocker plate to a lever rigidly fastened to the shaft, which transmits the motion to the knife bar instead of having the lever finger forming a part of the knife arm. Consequently there is no prying tendency which might destroy the adjustment of the blades.

Another important change is in the method of adjustment of the blades to give the proper degree of contact and the correct shearing angle. The method employed is a simple one, easily understood and operated. The adjusting screws are placed in housings, and being of fine pitch, and in the case of the angular adjustment, situated far enough from the pivotal point, make adjustment easy and not too sensitive. The screw for angular adjustment works in a lug against a projection from the rear of the knife bar. That for contact has a bearing against the end of the knife bar shaft.

Fig. 2.—An Attachment for Guiding the Mailing List While Being Wound on the Mailer Reel.

The machine is made in six sizes; these take, respectively, lists up to 1⅞, 2¼, 2⅝, 3, 3½ and 3⅞ in. wide.

A mailing list guide, the purpose of which is to guide mailing lists as they are wound on the reel of the Wing-Horton or any standard mailing machine, is shown in Fig. 2. As will be noticed the device is arranged to be clamped to the rear of the machine by a thumb screw, and is easily removable. Difficulty has been found in guiding lists straight by hand, so that they will not chafe on the side of the machine while unwinding. When the roll is wound "wobbly," and consequently chafes, the feed is hard and unsteady; the machine may even cease to feed. The guide is designed to obviate these troubles. It is made of brass. The list is threaded through a slot of the proper width to prevent the paper from working from one side to the other, the roll turning true and even. A gentle pressure of thumb and finger on the paper produces a sufficient tension to give a compact roll. The device is manufactured to fit any desired width of list.

The opposition to the plan for reorganizing the Southern Steel Company, Birmingham, Ala., as presented some weeks ago, has succeeded in preventing the sale of the company's plants for the present. At New Orleans, March 31, the United States Circuit Court of Appeals granted an appeal from the order of the United States Court for the Northern District of Alabama, directing the sale of the company's properties. The sale was advertised for April 12. The appeal may not be heard until November. Attorneys for the trustees, who say that it is now costing $2500 a week to hold the property, ask that the appeal bond be made large if the sale must be postponed until November.

Customs Decisions.

Microscope Slides.

The Board of United States General Appraisers has settled a controversy between the Government and the American Express Company, acting for a client in favor of the latter. The controversy related to the classification under the tariff of microscope slides composed of strips of glass 3 in. in length by 1 in. in width. Under the classification imposed by the collector of customs these were assessed at the rate of 60 per cent. ad valorem as being "glass cut, or decorated, or ground." The importers set up the contention that the microscope might be found dutiable under the provision in the law for "unenumerated unmanufactured articles" at 20 per cent.

General Appraiser Sharretts in his decision for the board says that in the case at bar the merchandise is not merely strips of ground glass. By reason of the fact that specimens for microscope investigation have to be prepared and mounted with consummate skill by scientific men the value of the microscopic slides is approximately 18 times greater than that of the mere ground glass strips, and we so find."

Noise Makers.

The Board of United States General Appraisers has decided that so-called "noise makers" cannot be considered to be toys. This claim was made by the International Forwarding Company, which objected to the imposition of a 45 per cent. duty on the articles as "manufactures of metal." The noise makers are made of a metal tube fitted with a spring and a sliding plunger. It appears that a chemical compound and cork are essential parts of the merchandise in its completed form. The metal tubes after importation are fitted with these. The sliding plunger in use hits against the chemical compound contained in the cork and causes it to explode. The board overrules the contention of the importer for duty at the rate of 35 per cent. under the toy schedule.

Wind Bells.

Adverse action has been taken by the Board of United States General Appraisers in the protest case of Swayne, Hoyt & Co., San Francisco, regarding the classification of so-called wind bells. According to the importers the articles should be regarded as toys, with duty at the rate of 35 per cent. ad valorem. On the other hand, the Government alleged that the merchandise cannot be considered as falling under the toy schedule, but is dutiable properly under the provision in the law for manufactures of metal at 45 per cent. General Appraiser McClelland in overruling the claim of the firm says that the bells are not such as ordinarily would be used by children and are thereby excluded from the benefit of the toy schedule.

Closing Up Zinc Ore Cases.

In harmony with the ruling of the United States Circuit Court of Appeals in the so-called zinc ore test case, the Board of United States General Appraisers has begun deciding several hundred importers' appeals that have been on the suspended files during the litigation in the test case. The differences between the Government and importers resulted from the assessment of duty at the rate of 20 per cent. under the provision in the tariff act for "metallic mineral substances in a crude state." The outcome of the test suit was that the court of last resort held that zinc ores in the form of carbonates, silicocarbonates and sulphides or concentrates are free of duty except when containing lead, the lead content being subject to duty under paragraph 181.

Among the importers whose claims have been sustained recently by the board are the New Jersey Zinc Company, the Prime Western Spelter Company, L. Vogelstein & Co., Empire Zinc Company, C. C. Brewster and others. As a result of the court's decision the Government will be under the necessity of making large refunds of duties collected.

Miner's Diamonds.

After prolonged litigation, Judge Lacombe, in the United States Circuit Court at New York, has rendered a decision holding that miners', glaziers' and engravers' diamonds, whether whole or split, are free of duty if they are not set. This decision, while standing in the name of the Sullivan Machinery Company, is said to be of vital interest to many hundred importers who have filed similar complaints with the Board of Appraisers. These latter protests have been on the suspended files of the tribunal for a long time. If the Government decides to accept Judge Lacombe's ruling, large refunds of excess duties will be made to importers. The Treasury Department has insisted that the merchandise pay duty under the provision in the tariff act for diamonds advanced in condition at the rate of 10 per cent. There have been several trials before the board and in the courts of the question, but in practically all of the proceedings the importers have had the better of the argument.

Automobiles Not "Household Effects."

The Board of United States General Appraisers has declined to allow the entry free of duty of an automobile whose owner contended that it should be regarded as a "household effect" within the meaning of that term as used in the tariff act. On the other hand, the customs officials held the car subject to a tax of 45 per cent. as a "manufacture of metal." The board follows a decision of the United States Circuit Court of Appeals in sustaining the assessment made by the customs authorities. The car is valued at $5000, and the duty is $2125.

Steel Rims for Automobiles.

In overruling a protest made by the Michelin Tire Company, New York, the Board of United States General Appraisers has decided that steel rims for automobiles must stand duty at the rate of 45 per cent. under the provision in the tariff act for "manufactures of metal" not specially provided for. The importer claimed that the rims should be assessed for duty at specific rates, either under paragraphs 128, 129 or 171, which provide for hoop, band, scroll or railway wheels. General Appraiser Fischer, in his decision for the board, says that there is nothing in the record to convince the board that there has been any error in the classification made by the collector. He adds that the steel rims in question are not directly covered by the paragraphs referred to by the importer, while paragraph 193 applies to metal articles of this kind.

Zinc Tiles.

In overruling a claim filed by the Stengel Brothers Company, Pittsburgh, the Board of United States General Appraisers has decided that zinc sheets in the form of metal tiles must stand duty as "manufactures of metal not specially provided for," at the rate of 45 per cent. The importing firm set up the contention that the merchandise should be regarded as "enameled metal sheets," with duty at the rate of 40 per cent. After hearing the testimony, however, the Board finds that the classification complained of is correct and must stand, the protest being overruled on all grounds.

Sheet Steel Stamped Wares.

Steel shapes in the forms of pitchers, knobs, handles, spouts, &c., have been held by the Board of United States General Appraisers dutiable as "manufactures of metal not specially provided for" at 45 per cent. The articles are stamped from steel sheets, and then spun or otherwise manipulated into shape. Lunham & Moore, the importers, set up the contention that the merchandise should be allowed to enter at a specific rate, according to value per pound under paragraph 135, as "pressed, sheared or stamped shapes," or as "steel in all forms and shapes not specially provided for." In overruling the claims of the importers, General Appraiser Fischer says that spun steel articles and shapes upon which work as been bestowed subsequent to the stamping process cannot be regarded as coming within the meaning of paragraph 135.

Steel Forgings.

In denying a claim filed by the George Nash Company, New York, the board holds merchandise invoiced as "special Dannemora cast steel forgings," as dutiable at the rate of 35 per cent. under the tariff provision for "steel forgings." The importers maintained that the merchandise should be classified as "pressed, sheared or stamped shapes" at specific rates.

New Publications.

Forging: A Manual of Instruction in Hammering, Working, Forming and Tempering of Iron and Steel. By John Lord Bacon. Cloth bound, 6½ x 9¾ in.; pages, 112; illustrations, 117. Publishers, American School of Correspondence, Chicago. Price, $1.

The book is one of a series which is designed to give a résumé of practice according to more recent methods in shop, power and engineering lines, and particularly to aid those pursuing home study. The author is instructor in forge work at the Lewis Institute, Chicago, and some years ago brought out a more voluminous book entitled "Elementary Forge Practice." His explanations are lucid and simple language is employed, technical refinements and mathematical formulas being avoided. In the first section of 24 pages the materials and tools of the forge shop are described, and the welding process is dealt with. In the body of the book upwards of 50 pages are given to forging operations, proceeding from simpler to more complicated work. The calculation of stock for forged work is treated with clearness and tables are given of weights of flat, round and square bars of various thicknesses or diameters. Tool steel work naturally receives a good share of attention, the treatment of various kinds of tools in hardening and tempering being described with the help of illustrations. Heavy forging and the use of the steam hammer are not extensively treated. Electric welding development is described in a reprinted article of Prof. Elihu Thomson. The book serves its purpose well. It is clearly printed, well illustrated and adequately indexed. A few typographical shortcomings, particularly in punctuation, should receive attention in subsequent editions.

Rapid Methods for the Chemical Analysis of Special Steels, Steelmaking Alloys and Graphite. By Charles Morris Johnson. Cloth, 8vo., pages, 228. Publishers, John Wiley & Sons, New York. Price, $3.

As chemist of the Park Steel Works of the Crucible Steel Company of America, Mr. Johnson has worked out a number of problems in the chemical analysis of special steels, and thus a considerable portion of the material presented in his book is new. He refers particularly to the following features which come under this category; a qualitative test for titanium in the presence of vanadium; annealed test for chromium steel; chemical tests for annealing in steel; pouring the indicator into the solution when titrating for vanadium and chromium in steel in the presence of either or both elements; determination of small amounts of copper and nickel in steel and ferrovanadium by first separating the copper and nickel from the bulk of the iron and vanadium by means of potassium ferricyanide; exact determination of phosphorus in ferrovanadium, demonstrating that as little as one-eighth of the actual phosphorus may be obtained by the ordinary processes; application of the new heating wire to a combustion tube; a modified method for higher per cents. of nickel; the determination of silicon carbide in old plumbago crucibles and its existence therein; the automatic laboratory still; simple laboratory method for making clay combustion boats; a method for annealing Hadfield's steel; method for the rapid volumetric determination of manganese in the presence of iron, calcium and magnesium, by means of potassium-ferricyanide; a new form of potash absorption and weighing apparatus for carbon dioxide; a new form of combustion train.

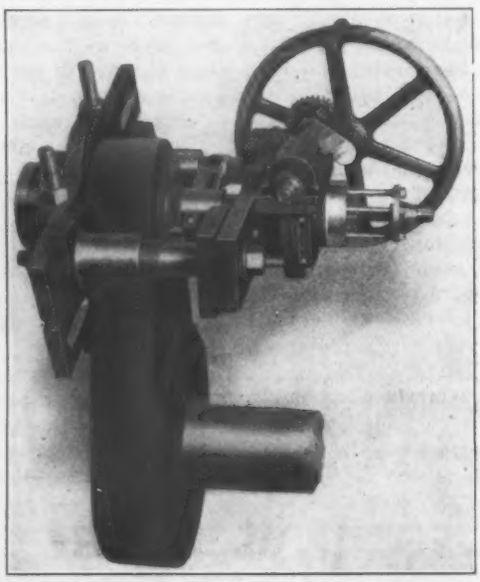
The chapter on the annealing of steel deals with annealing temperatures, the formation of graphite carbon and black fracture, the acid test for annealing and the annealing test when alloys are present. It is of special interest and value. The entire volume, in fact, will prove helpful to the increasing number of laboratory workers who are dealing experimentally and practically with alloy steels.

The annual statement of the production and consumption of coal for the world, issued by the British Board of Trade, shows that about 1,000,000,000 tons was produced in 1907. The following were the five chief producing countries: United States, 428,896,000 tons; United Kingdom, 267,831,000 tons; Germany, 140,885,000 tons; France, 35,586,000 tons, and Belgium, 23,324,000 tons. The production in the United Kingdom amounted to about 6 tons per head, in the United States to 5 tons per head, in Belgium to 3¼ tons, in Germany to about 2¼ tons, and in France to less than 1 ton per head. The average value per ton in the United Kingdom was $2.25; in the United States, $1.45, and in Belgium, $3.33. All these prices are higher than those for 1906.

The Underwood Portable Universal Boring, Turning and Facing Machine.

When crank pins are riveted in a countersunk hole, it is laborious and slow to cut away all this metal with a hammer and chisel, so that the pin can be forced out. A new tool, intended principally for this work, but also adapted to a wide range of other work, is made by H. B. Underwood & Co., 1026 Hamilton street, Philadelphia, Pa.

This machine, as the engraving shows, is easily set up, and will cut away the metal neatly in a quarter of the time required to chip it away with a cold chisel. It is readily clamped to almost any piece of work, and is then in a position to bore, turn or face. The parts include a slotted cross head, which forms the base of the machine, and a casing which contains a worm wheel having large integral hubs for resisting wear. Through the worm wheel the cutting spindle slides with a range of 4 in. of feed by hand. In the end of the spindle is a steel slide for the cutting tool, and this is adjustable for different diameters by means of a feed screw, the maximum diameter being about 12 in. Two slotted cross heads, which in the center are cut V shape, clamp the work (the V's will take practically all sizes), and are pulled together by 1 in. through bolts. There are two adjustable spacing blocks threaded to receive each other and bored out which will straddle different diameter cranks, locomotive wheels or other work. Bolts pass through these blocks and clamp the machine proper to the cross heads.



A Portable Hand Power Universal Boring, Turning and Facing Machine, Made by H. B. Underwood & Co., Philadelphia, Pa.

The entire machine is very firm and solid, and each piece being light in weight is easily handled by one man. The machine is quickly centered, and has three changes of speed for heavy, medium or light work. These speeds are obtained by interchanging the gears shown on the driving shaft or by driving direct without them. The spindle is at right angles to the base or cross head, and by means of an extra facing attachment can be used for facing pump or engine valve seats; it is immaterial whether or not the steam chest is solid or the valve seat several inches below the face of the chest. The machine may be driven by hand or by power, if there is a convenient source.

A Well-Tubing Pulling Machine.

The Dale Engine & Supply Company, Franklin, Pa., has placed on the market the S. G. Milton pulling machine, built almost wholly of metal. The frame is structural steel and carries a 6½-in. iron shaft with a 24-in. drum line wheel and a 34-in. brake wheel. These two wheels are the only wooden parts on the machine. The drum has a ratchet attachment and two cranks for operating it. The brake iron is 5 in. wide and has a bearing over more than seven-eighths of the circumference of the brake wheel.

The mast consists of two telescoping sections of well casing, the inner one 5 in. diameter and the outer one 5⅝ in. When extended it has a hight of 39 ft., and telescoped 20 ft. In the latter condition it is a double mast capable of pulling tubing and doing other heavy work. The top of the 5-in. section is reinforced and contains the sheave. The mast is raised and lowered by an independent reel, and is held in extended position by a latch which drops automatically, and may be released from the ground by pulling a wire.

All of the pulling lines are flexible steel wire and the guys are galvanized wire with 15 ft. of chain at the ends for attaching to stakes. The machine is mounted on a truck having two 4½-ft. wheels with 4-in. tires, and is evenly balanced so that it may be transported in horizontal position by a team of horses. The machine can be raised and placed in position for pulling by one man with the ratchet and brake or with the team. When raised the truck is removable. The high wheels of the truck roll easily over rough places in the road without pounding on the horses collars while in transportation.

Three sizes of these machines are built: One for wells up to 1200 ft. deep, which weighs 1400 lb.; one for wells as deep as 2000 ft., weighing 1500 lb., and a third for wells of any depth, weighing 1600 lb. In each case the truck and lines weigh 1000 lb. Being entirely of iron danger from fire and decay is removed and maximum strength is obtained. It is also unnecessary to house the machine. The base is extra wide, being 7 ft. across, which prevents it from tipping over sideways while being raised. As the machine has cranks for turning the shaft to raise the joints, a ratchet for raising tubing or rods to take off elevators, and a brake for lowering them into the well, horses are not needed for retubing or putting in rods. It is claimed to be the easiest and most cheaply operated machine of its kind built.

Dominion Steel and Coal Companies' Agreement.

Two agreements were entered into March 30 between the Dominion Iron & Steel Company, Sydney, Nova Scotia, and the Dominion Coal Company, looking to the settlement of the long pending litigation over their coal contract. In connection with these last agreements the coal company paid $2,750,000 on account of the damages claimed by the steel company. The substance of the agreements is thus given by the *Financial Chronicle:*

The coal contract of October 20, 1903, is declared to be in full force and effect and the steel company is permitted within 10 days to deliver to the coal company notices of its requirements of coal for April, May and June, 1909, not exceeding 80,000 tons per month.

The steel company may, in the pending action, recover damages suffered from August 1, 1906, to date, but no damages shall be assessed therein for the unexpired term of the contract. Neither party shall be precluded from bringing action for any breach of the contract which may hereafter occur.

The steel company is to file a statement of the particulars of its claim and within two months also a complete detailed supplementary statement of all damages caused by the short deliveries of coal by the coal company or the partial shutting down of the steel company's works by reason thereof, the coal company to have four months (exclusive of delay caused by the steel company) to verify the particulars of the claim, and for that purpose to have the right to examine the works, books, accounts and documents of the steel company.

The payments on account shall be without prejudice to the right of the coal company to dispute any of the items of the steel company's claim.

After the conclusion of the examination an amicable settlement of the litigation is to be reached, if possible, before proceeding to assess the damages claimed before the referee appointed by the court.

February Iron and Steel Exports and Imports.

The downward course of our iron and steel exports, which has been noticeable for some months, showed a change for the better in February, according to the report of the Bureau of Statistics of the Department of Commerce and Labor. The value of the exports in that month of all kinds of iron and steel and manufactures thereof, not including ore, was $10,947,159, against $10,329,388 in January. The commodities for which quantities are given show quite a sharp increase, the figures for February being 84,860 gross tons, against 70,085 tons in January. The details of the exports of these commodities for February and for the eight months of the fiscal year ending with February are as follows:

Exports of Iron and Steel.

	February.		Eight months.	
	1909.	1908.	1909.	1908.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron	2,749	1,676	32,213	36,295
Scrap	1,284	693	12,874	11,171
Bar iron	676	1,124	6,216	10,987
Wire rods	1,066	972	6,056	4,602
Steel bars	5,624	2,868	29,931	47,965
Billets, blooms, &c	6,448	21,691	64,466	56,216
Hoop, band, &c	255	588	2,434	7,603
Steel rails	20,577	8,969	147,248	221,145
Iron sheets and plates	4,664	3,945	33,476	29,881
Steel sheets and plates	6,695	4,647	44,410	42,134
Tin and terne plates	1,881	172	2,837	5,032
Structural iron and steel	9,360	9,390	71,850	93,862
Barb wire*	3,852	11,278	43,383	108,621
Wire	7,140		41,259	
Cut nails	381	187	4,470	3,744
Wire nails	3,798	3,764	18,089	27,155
All other nails, including tacks	595	353	4,201	4,382
Pipes and fittings	7,815	9,456	73,917	126,687
Totals	84,860	81,773	639,330	837,482

* Not separately stated prior to July 1, 1908.

It will be observed from the above table that the exports in February of this year show a slight gain over similar exports in February, 1908.

The imports of iron and steel now show little change from month to month. The total value of the imports of all kinds of iron and steel and manufactures thereof, not including ore, was $1,798,675 in February, against $1,830,071 in January. The imports of commodities for which quantities are given totaled 19,418 gross tons in February, against 19,782 tons in January. The details of the imports of these commodities for February and for the eight months of the fiscal year ending with February are as follows:

Imports of Iron and Steel.

	February.		Eight months.	
	1909.	1908.	1909.	1908.
	Gross tons.	Gross tons.	Gross tons.	Gross tons.
Pig iron	9,595	8,031	66,397	181,062
Scrap	895	398	3,996	16,532
Bar iron	1,335	3,943	11,376	28,566
Rails	3	....	1,137	2,181
Hoop, band, &c	26	59	893	286
Billets, bars and steel in forms n.e.s	605	429	8,273	12,730
Sheets and plates	294	117	1,926	1,805
Tin and terne plates	4,196	5,134	30,014	37,040
Wire rods	812	903	7,505	10,100
Structural iron and steel	1,657	40	4,618	1,325
Totals	19,418	19,054	136,135	291,627

The imports of iron ore in February were 61,749 gross tons, against 105,233 tons in January. The total imports of iron ore for the eight months of the fiscal year ending with February were 610,082 gross tons, against 762,333 tons in the corresponding period of the previous fiscal year.

The total value of the exports of iron and steel and manufactures thereof, not including ore, in the eight months of the fiscal year ending with February, was $91,275,211, against $130,399,349 in the corresponding period of the previous fiscal year. The imports were, respectively, $13,400,630 and $21,170,314.

To eliminate constant repairs, and with the view of using up old ties as scrap in the open hearth furnaces at the South Sharon Works of the Carnegie Steel Company, orders have been issued to lay steel railroad ties in the yards of this works in the future.

THE IRON AGE

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Iron Market Tendencies.

As the "open market" period lengthens, a few things begin to take shape out of the confusion into which the entire iron trade was thrown by the United States Steel Corporation's announcement of February 19. Yet it is to be said that even in the few particulars about which it is possible to speak more clearly the data are none too conclusive. The one thing which it is possible to assert definitely of the present market is that the facts about many transactions are not in any sense "open," the policy of some important sellers apparently being to have the left hand and the right hand work without any attempt at unison. Each of the constituents of the United States Steel Corporation, for example, appears to be working out its own policy—not without thorough knowledge on the part of the controlling organization, but seemingly with an understanding that each product is to be dealt with as conditions in its own department of the industry require.

It will be agreed that any doubt existing at first of the purpose to let the law of supply and demand operate freely has been dispelled. Those who saw in the open market announcement the temporary dangling of attractive offers before buyers, with the idea of bringing large orders to the mills within a short time, and then returning to the régime of quasi co-operation on a higher price level, have seen enough to become convinced that something of vastly greater significance is afoot. It was evident for a time following the open market declaration that the leading steel companies were making no abrupt departure from conditions that had existed for more than 15 months. They disclaimed any intention of entering upon an indiscriminate "price war," such as had been heralded in sensational newspaper articles. Moreover, market developments bore out the promise of an "orderly adjustment." There was a measure of unanimity in holding to the new prices, and buyers found that on ordinary business the disposition was general to make the announced price the minimum. So large a tonnage was on the books for certain products, particularly bars, that the manufacturer found no temptation to make fresh cuts which would carry with them another readjustment of contracts.

To a very considerable extent the same restraining influence is at work to-day, but signs have developed in the past two weeks of a more aggressive competitive policy in particular lines. Attention has been centered on structural steel, and the amount of business closed by the fabricating subsidiary of the United States Steel Corporation at prices below the best bids of other fabricating companies has been a matter of almost sensational interest. At the same time the possibilities of low prices on bars in the contracts that are soon to be made with the agricultural implement manufacturers are raising vexing questions as to the length of the period through which the mills will be occupied on low priced business. The ability of the large independent steel companies to compete with the United States Steel Corporation in a prolonged test of strength—a subject discussed with animation at the time the Steel Corporation was formed, but not much thought of in recent years—is being canvassed again.

Naturally, the effect of present competition on the iron and steel jobbing interests is a matter of concern in some quarters. The events of the past few weeks indicate that the struggle among the manufacturers is narrowing, at least for the time being, the operations of the jobber, and that concessions such as were generally made to him are now less common. On the other hand the jobber, with an established trade in a diversity of rolling mill products, is in position to furnish an outlet for a considerable tonnage to such mills as recognize the value of his services.

As the Steel Corporation was the leader in co-operation and conciliation last year, every move in the working out of the other policy now will be given significance. One possibility calls for special emphasis. The pig iron and steel making capacity of the country are now equal to a much greater strain than was put upon them two years ago by the highest rate of consumption ever known in the country. It may seem premature, therefore, to speculate on what the present competitive conditions will come to when prosperity again smiles upon the steel trade. Yet it should be pointed out that a market open on the downward swing means also a market open on the upward swing. In other words, under the policy now being followed by the large steel companies, of allowing the relation of supply and demand to determine the market, there will be no restraint upon the upward movement, when it comes, except that imposed by the same law. That would be a return to some well remembered phases of the iron market in the years preceding the consolidation era. It suggests, too, that the consequences of the present remarkable situation in iron and steel will be farther reaching than is now appreciated.

Machinery Salesmen's Lack of Authority in Closing a Deal.

The complaint is made by purchasing agents who regularly buy a large and varied assortment of machinery and supplies that the average salesman is not given enough authority in closing a business deal. It therefore frequently happens that a great deal of time, valuable to the purchasing agent, is taken up by the salesman who must make several trips between his firm and the buyer in order to arrange the conditions of a sale. This state of affairs is especially true in the machine tool line, according to an agent who has been closing some large machine tool lists of late. He also found it a common experience that representatives of machine tool houses were not only uninformed as to details of the construction of the machines they were selling, but were unable to make any definite promises as to deliveries and discounts; some were not able to state how many attachments accompanied such machines as gear cutters, milling machines, lathes and other equipment designed to perform a variety of work. Inquiries from the purchasing agent as

to what the seller could offer as to delivery terms resulted in the machine tool salesman making a return trip to his office. Sometimes there were two or three visits from the salesman to the purchasing agent before the deal could be arranged, whereas the latter had been ready to close at once for the machinery in question if the salesman could have given definite and decisive replies as to what his firm was willing to concede or allow regarding certain details.

Of course, there are some salesmen of machine tools who thoroughly know the machines they sell and are ready to say just what their principals can promise, and if the purchasing agent is a busy man he is glad to close the deal without further haggling, especially if he is convinced that the salesman has the last word on his side of it. There is small excuse for a man who is not familiar with the machine he is trying to sell, but it is too often the case that manufacturers or dealers hamper their representatives by instructing them not to promise certain conditions without consulting headquarters. The man thus handicapped has but a meager chance of landing an order in competition with the one who approaches the purchasing agent armed with the knowledge of just how far his house will go in the way of making concessions. Machine tool houses should require salesmen to know their lines thoroughly, and in return should give them the full authority to act on every possible question that might arise in selling a machine.

The Drawback Provision of the Payne Tariff Bill.

An important feature of the Payne Tariff bill to which reference was made in *The Iron Age* of March 25, page 987, is the new proposal for the regulation of drawback allowances on goods manufactured from imported dutiable materials. It embodies the so-called substitution principle employed for many years in the French drawback law. If this provision becomes the law, a manufacturer can import dutiable materials and collect the drawback, equal to 99 per cent. of the duty, at any time within three years, upon showing the exportation of the "equivalent" quantity of materials. It will not be necessary to identify the materials of foreign origin in any particular export shipment. The foreign materials may be mixed with domestic in producing any lot of goods, or may be entirely replaced by domestic materials. Foreign iron may be used in making goods for domestic sale, and domestic iron may be used exclusively for an export shipment, but the manufacturer can collect the drawback on the export shipment by showing the use of material equivalent in quantity "or productive manufacturing quality" to the iron that he has imported.

Under the old drawback law, as provided in the Dingley tariff, it is necessary to show and identify the quantity of imported materials used in producing each export shipment; and where foreign and domestic materials are used together or mixed, it is necessary that the foreign materials "shall so appear in the completed articles that the quantity or measure thereof may be ascertained." Manufacturers of machinery and other forms of iron and steel can seldom comply with this exacting requirement. The meat packers, oil refiners and other large users of tin cans can import tin plate, make the cans in their own plants, and without any difficulty collect the drawback on their export shipments, but only a few other concerns are so situated that they can take advantage of the law.

Foreign orders are only an incident in the business of the average manufacturer. They are usually run through the shop along with domestic orders, and it has seldom been found practicable to keep the imported materials and the parts made from them separated from domestic materials and parts. It would interfere with economical management in the average foundry to run exclusively for any length of time on castings for export goods, using imported iron. It is difficult to obtain foreign iron of the analysis required in the production of American machinery, and if the foreign is mixed with domestic iron the drawback cannot be collected on castings made from it, because it is impossible to identify in the product the amount of the foreign iron that is used in the foundry mixture.

The new bill would eliminate all this difficulty. Any manufacturer of foundry products would be able to import iron equivalent to his tonnage of exported castings, without having to account for the use made of the imported materials. If he found his imported iron unsatisfactory, for any reason, he might sell it to his neighbors and use domestic iron entirely in his export castings, and still collect the drawback. The bill would permit paying a drawback on steel made from imported pig or scrap, upon showing that the steel company or its customer has exported a quantity of steel equivalent to the imported material. The form in which these provisions are made appears from the text of the drawback section as given below, while in parallel column is given the very different text of the drawback section of the Dingley act.

SECTION 29 OF THE PAYNE BILL.

On the exportation of articles manufactured or produced in the United States either in whole or in part of imported materials, or from domestic materials of equal quantity and productive manufacturing quality and value, such question to be determined by the Secretary of the Treasury, there shall be allowed a drawback equal in amount to the duties paid on the imported materials used, or where domestic materials are used, to the duties paid on the equivalent of imported materials, less the legal deduction of 1 per cent: *Provided*, That the exportation shall be made within three years after the importation of the foreign material used or checked against: *And provided further*, That the quantity of materials used and the amount of duties paid shall be ascertained, the facts of the manufacture or the production of such articles in the United States and their exportation therefrom, and the equality of domestic and imported materials, where the former are substituted for the latter, with respect to quantity and productive manufacturing quality and value, shall be determined, and the drawback due thereon shall be paid to the manufacturer, producer or exporter, to the agent of either, or to the person to whom such manufacturer, producer, exporter or agent shall, in writing, order such drawback paid, under such regulations as the Secretary of the Treasury shall prescribe.

SECTION 30 OF THE DINGLEY ACT.

That where imported materials on which duties have been paid are used in the manufacture of articles manufactured or produced in the United States, there shall be allowed on the exportation of such articles a drawback equal in amount to the duties paid on the materials used, less 1 per centum of such duties: *Provided*, That when the articles exported are made in part from domestic materials the imported materials, or the parts of the articles made from such materials, shall so appear in the completed articles that the quantity or measure thereof may be ascertained: *And provided further*, That the drawback on any article allowed under existing law shall be continued at the rate herein provided. That the imported materials used in the manufacture or production of articles entitled to drawbacks of customs duties when exported shall, in all cases where drawbacks of duties paid on such materials is claimed, be identified, the quantity of such materials used and the amount of duties paid thereon shall be ascertained, the facts of the manufacture or production of such articles in the United States and their exportation therefrom shall be determined, and the drawback due thereon shall be paid to the manufacturer, producer or exporter, to the agent of either or to the person to whom such manufacturer, producer, exporter or agent shall in writing order such drawback paid, under such regulations as the Secretary of the Treasury shall prescribe.

There has been some complaint among exporting manufacturers that tariff duties on their materials have interfered with the extension of their foreign trade, by raising their costs. The Payne drawback clause will remove the cause of this complaint, as the manufacturer will be in position to import his iron, steel and other materials practically free of duty to cover his entire tonnage of export shipments. In some cases this privilege will undoubtedly be used to secure from domestic producers of iron and steel prices on a par with the export prices of European syndicates. No one can foresee just

how far the provision may reach, but under certain conditions the privilege of free importation of iron and steel may have the same price equalizing effect between the United States and Europe as though pig iron and the forms of steel used in export goods were placed on the free list. During a period of unusual demand and high prices for domestic pig iron, exporting manufacturers could bring in a large tonnage of foreign iron, which for the time being they would work into product for the home market, reaping the exceptional profits then available at home. They would then have three years within which to export a sufficient tonnage of machinery or castings to cover the importations and receive the drawback. The home boom would presumably have spent itself long before the three years were up, making the export trade a welcome outlet. The probabilities are, therefore, that exporting interests which consume pig iron would have recourse against advancing domestic prices for their raw material in a way that has not been possible heretofore. There are a good many possibilities in the practical application of this provision, which apparently have not had due recognition in the discussion of the iron and steel schedules.

The Eastern Steel Company in the Moa Ore District.

The Eastern Steel Company, which has created a practically new steel plant and modern structural mill at Pottsville, Pa., during the past four years, has been active in testing and acquiring iron ore property in the Moa District in Cuba for the past two years. The Moa ore deposits are of the same origin and possess the same general characteristics as the Mayari mines back of Nipe Bay, better known because their development has proceeded on a very comprehensive scale. The Moa mines are located 50 miles east of Nipe Bay and outcrop directly along the ocean. Like the Mayari, the deposit is a blanket of ore on serpentine, but the Moa, unlike the Mayari, which covers the top of a plateau, lies on the flank of the Moa Mountain. The coast is protected at this point by a series of islands and reefs, and a natural harbor is formed which at Punta Gorda gives 50 ft. of water at a distance of 900 ft. from the shore, with a clear channel to the sea. It is at this point that The Eastern Steel Company has a temporary dock under a concession granted, and this will probably become one of the shipping points.

The Eastern Steel Company has acquired ownership of 11,000 acres and has leased 1200 acres of the Moa deposit, the claims being in three groups. Of these the group at Punta Gorda is directly on the sea and will probably be the first to be developed. It includes the Dayton, San Antonio, Ohio, Concepcion and San Pol mines, which have been thoroughly tested by systematic boring and analyses. In a considerable number of holes the ore was not bottomed at a depth of 30 ft., and adjoining claims belonging to other interests have developed thicknesses of the ore body ranging up to 50 and 75 ft. There are undoubtedly available, besides the quantities of ore actually proved, additional reserves which may be estimated. In the case of the group at Punta Gorda the ore proved amounts to 5,000,000 tons, to which may be added a quantity estimated at 5,000,000 tons.

The second group, further westward, but close to the sea, is the San Francisco, which includes the mine of that name, the Constancia and the Herrera. Here the underlying serpentine is exposed along some of the water courses, and the thickness, too, varies. But exploration has shown up about 7,000,000 tons, and it is estimated that there is available a further like quantity.

The Brazil group, located to the eastward and extending some distance from the shore, is very extensive in area, but the deposit is not so thick. Still the total quantity available is very large, being estimated at upward of 25,000,000 tons.

In grade the ores vary within a wider range than do those of the Mayari District, being both leaner and richer. They run as high as 51 per cent. of iron in the dry ore, and will average about 45 to 46 per cent. They carry both chrome and nickel and are physically very similar to the Mayari ores.

Labor Notes.

At Lebanon, Pa., notice was posted last week of a reduction in wages at the plants of the Lackawanna Iron & Steel Company. This action was in conformity with the general reduction in wages recently ordered by the Lackawanna Steel Company.

A wage reduction of 10 per cent. has been made at the retort coke oven plant of the Semet-Solvay Company, at Lebanon, Pa.

A 10 per cent. reduction in wages went into effect last week at the Cornwall ore banks, Cornwall, Pa.

The Jones & Laughlin Steel Company, Pittsburgh, Pa., gave notice last week of a readjustment of wages at its various plants, generally amounting to a reduction of about 10 per cent. Under the conditions brought about by the boom of 1906 and 1907, some jobs were out of line and in some cases the reduction amounted to more than 10 per cent. Contract tonnage men are not affected and salaries in the mills and offices are not reduced. The company's notice reads: "On account of the depression in business due to the fear of a reduction in the tariff, it has become necessary to cut down expenses in every direction. To meet present prices a reduction in wages is unavoidable. The readjustment will be effective April 1."

A 10 per cent. reduction in wages has been made by the Shenango Furnace Company, Sharpsville, Pa., and at the coke plants of the company, in Westmoreland County, Pa.

The dispute in the engineering trades of the Midlands, England, promises to become serious. The proprietors of machine shops, boiler shops and other metal working establishments proposed to reduce wages 1 shilling a week, or one-half of the amount of the advance made two years ago. A good many firms have seen their business cut in two in the past year. The men have refused to accept the reduction.

The Reading Iron Company, Reading, Pa., reported applications last week from puddlers in other cities, but added that its old employees would be given the preference. In a notice posted Friday, April 2, the company said: "All who do not report for work on Monday next will be considered as having permanently left the employ of the company, and their places will be filled as rapidly as new men can be secured. Twenty-eight puddling furnaces out of 60 are in operation to-day."

Rollers employed in the wire department of the Carpenter Steel Works, Reading, Pa., went on strike last week against a reduction of 10 per cent. in wages.

Imprisonment for Intimidating Nonunion Men.—A case which for 18 months attracted the attention of foundry proprietors was taken out of the courts last month when Frank McGee, business agent for the Iron Molders' Union in the New England district, entered on a jail sentence of 12 months. He was arrested in the strike of 1907 for intimidating nonunion men who had employment at the McLagon Foundry Company's plant at New Haven, Conn. He was found guilty in the police court, and later was convicted by two juries in higher courts. The first verdict was set aside because of a technical irregularity in the drawing of jurors' names from the box. The Supreme Court of Connecticut affirmed the verdict in the lower court and the sentence which went with it—12 months in jail and $100 fine. McGee's attorneys made every effort to have the penalty made a fine and to have the court modify the jail sentence.

The Deforest Sheet & Tin Plate Company, which has commenced the erection of a new plant in Niles, Ohio, has let the contract for eight sheet mills and two tin mills to the American Roll & Foundry Company, Canton, Ohio.

The Tariff Discussion in the House.

WASHINGTON, D. C., April 6, 1909.—The Payne tariff bill will pass the House of Representatives on the 9th inst. with the aid of a small number of Democratic votes and probably in the face of the opposition of a considerable number of so-called insurgent Republicans. This outcome has been made possible by the adoption by the House yesterday of a special order from the Committee on Rules closing general debate, providing for the consideration of the measure by sections under the five-minute rule, specifying the amendments that may be offered and fixing a time for the final vote. The special order is in part as follows:

That consideration of said bill for amendment shall continue until not later than Friday, April 9, at 3 o'clock p.m., at which time the said bill, with all amendments that shall have been recommended by the Committee of the Whole House on the State of the Union, shall be reported to the House, and the previous question shall then be considered as ordered on said amendments and said bill to its engrossment, third reading and final passage; a separate vote may be had on the amendments relating to hides, lumber, oil, barley, barley malt, tea and coffee, or any of them, irrespective of their adoption or rejection in Committee of the Whole, and the vote upon all other amendments in gross; that the daily hour of meeting hereafter shall be 12 o'clock noon

At the close of the report of the tariff debate in the House, which appeared in *The Iron Age* of last week, that body was proceeding under the rule of general debate without limitation. The majority leaders soon began negotiations with the insurgent Republicans and the minority leaders for the purpose of bringing about an agreement to close general debate and ultimately to bring the bill to a vote. It became apparent that no arrangement could be made by unanimous consent, and it was therefore decided to invoke a special order from the Committee on Rules. The adoption of such an order, however, requires a majority vote, and it, therefore, became necessary to so frame the order that it would be satisfactory to a sufficient number of insurgent Republicans or Democrats to insure its passage. Twenty-six insurgent Republicans had signed an ultimatum, served upon Chairman Payne, declaring their determination to vote against any rule which did not provide for an opportunity to amend the bill by imposing a duty of 25 cents per ton on iron ore, raising the duty on pig iron and scrap to $3 a ton, and imposing a duty of 45 cents per ton on bituminous coal, in addition to certain amendments to other schedules. This action of the insurgents greatly embarrassed the majority leaders, as the conditions were regarded as impossible, the proposed amendments striking at the basic principles of the Payne bill.

After a careful canvass of the membership of the House, the Republican whips were finally able to report that a rule could be adopted ignoring the demand for votes on iron ore, pig and scrap and on coal, if an opportunity could be afforded to vote lumber on the free list, to restore hides to the dutiable list, to increase the duties on barley products and to substitute a 25 per cent. ad valorem duty for the countervailing clause covering crude petroleum and its products. The Committee on Rules, after a 4-hour session, brought in with some trepidation the special order above quoted, and after an exceedingly spirited debate carried it through the House by a vote of 194 to 178. The anxiety of the Republican leaders was thus fully justified, as a change of nine votes in a House of nearly 400 members would have beaten the rule and left the bill open to amendments on every item. The bill was this morning taken up for discussion by paragraphs under the 5-minute rule.

Amendments Adopted by the Committee.

The Ways and Means Committee has adopted nearly half a hundred amendments of more or less importance which will be offered to the bill when the appropriate paragraphs are reached. The proposed modifications include a number of verbal changes and correction of clerical errors, but a score or more provide material changes in rates. Those of special interest to the readers of *The Iron Age* are as follows, the numbers indicating the paragraphs.

88. Fluorspar advanced from 50 cents to $1.50 per ton.

89. Crude mica increased from 30 per cent. ad valorem to 5 cents per pound and 20 per cent. ad valorem, while manufactured mica is increased from 35 per cent. ad valorem to 10 cents a pound and 20 per cent. ad valorem.

93. Carbon electrodes, including those used in electric smelting, reduced from 25 per cent. to 10 per cent. ad valorem.

118. Charcoal iron advanced from $6 to $10 per ton.

134. Wire less than No. 16 increased from 1½ to 1¾ cents a pound.

151. Knives "assembled in the rough," made dutiable as "wholly or partly manufactured."

182. "Ferrophosphate," as it appears in the enumeration of ferroalloys, to be changed to ferrophosphorus, the former not being a recognized trade name.

194. Machinery for lace making and embroidery, which may be imported duty free until July 1, 1911, more definitely described.

538. Sulphate of iron, or copperas, taken from the free list and made dutiable at 5-100 of a cent per pound.

Section 41. Clause stricken out which provided that aliens applying for patents in the United States should be subjected to the same rules that Americans applying for patents are subjected to in the countries of which these aliens are citizens. This clause was a reply to the Lloyd George Act, recently adopted in England, requiring foreigners to manufacture in Great Britain the articles which they desire to patent. The committee was informed that the proposed law controverted an international treaty of 1883 to which the United States subscribed in 1887 and which provided that none of the signatory powers could make any discrimination in patent laws between its own citizens and those of the other powers subscribing to the treaty.

The fact that many of the committee amendments involve increases in the rates of the Payne bill, and, therefore, are not likely to be supported by the Democratic members of the House, taken in connection with the uncertain attitude of the Republican insurgents, renders it doubtful as to whether all the modifications proposed will be adopted.

Work of Finance Committee.

The Senate Finance Committee has been making rapid progress with the consideration of the Payne bill, which was taken up informally by the Republican members of the committee immediately after its introduction in the House, and the prediction is now made that it will be reported to the Senate on the 14th or 15th inst. The committee has made many changes in the measure, restoring the Dingley duties in some instances and in others adopting compromise rates. It is understood that a duty of 20 cents per ton has been provided for iron ore; that pig iron and scrap iron and steel will be advanced to $3 per ton, and that certain adjustments in the relation of raw materials to manufactured products suggested by Judge Gary of the United States Steel Corporation will also be made.

Paragraph 182, relating to ferroalloys, will probably be recast. The rate of 15 per centum ad valorem by the House bill is regarded by steel makers as inordinately high, especially for those grades of ferromanganese and ferrosilicon commonly known as blast furnace alloys and having a content not exceeding 15 per cent. The domestic producers of the more costly alloys are disposed to make a concession and to permit the blast furnace alloys to take the same rate of duty as is imposed on pig iron, which would be satisfactory to the steel makers, but the two interests are still far apart as to the duties on the high priced alloys.

To Modify Maximum and Minimum Plan.

An important change which the Finance Committee is expected to make in the Payne bill deals with the maximum and minimum feature as found in Section 4. Chairman Aldrich has regarded this section of the House measure with disfavor, because he has felt that the drastic retaliatory provision incorporated therein would constitute a standing invitation to a tariff war with the leading countries of Europe. He would prefer a radically different system in which the maximum rates should constitute the general tariff and the minimum rates the conventional or reciprocity tariff, but recognizing that such a change would mean the recasting of every schedule, he has suggested a modification that it is understood will be incorporated in the bill with President Taft's approval. The House provision requiring the imposition of maximum rates on products coming from countries which do not, within 60 days after the law goes into force, grant their minimum rates to products of the United States, is to be amended so that the maximum rates will not apply in any case for the period of a year. Even at the expira-

tion of that time the retaliatory rates will not apply automatically, as provided by the House bill, but will be imposed in the discretion of the President.

The metal schedule has received considerable attention in the debate in the House the past week, the principal arguments presented being designed to show the necessity for amending the Payne bill either for the purpose of increasing the protection provided or to clarify the classification so as to prevent evasion of the law. A speech dealing largely with the metal schedule, which has aroused much interest, was delivered by Representative Kennedy of Youngstown, Ohio, who has devoted much attention to the manufacture of iron and steel, which constitutes the chief industry of his Congressional district. Mr. Kennedy believes the Ways and Means Committee acted unwisely in reducing the duty on scrap iron and steel below the rate on pig iron, and makes the further point that scrap should be so defined as to prevent the evasion of the law by the importation of iron in the form of pigs or otherwise so broken up as to permit its classification as scrap. In this connection Mr. Kennedy said:

The Pig Iron and Scrap Duties.

The bill, as written, provides for a tax on iron in pigs coming into this country of $2.50 per ton. The Dingley bill provided $4 per ton on pig iron and scrap iron of every form. Now this bill makes a difference between pig iron and scrap iron. It says: "Wrought and cast scrap iron and scrap steel, 50 cents per ton." Every pound of scrap iron, either cast or wrought scrap iron, that is remanufactured, takes the place of pig iron. Every pound of wrought iron scrap and cast iron scrap supplants so much pig iron.

I have read the hearings of the Ways and Means Committee on this subject and the committee evidently allows a difference between pig iron and scrap iron because certain manufacturers insisted that there was a lack of wrought scrap iron in our market. The great percentage of all the iron that goes out to be used will come back in six, seven or eight years to be remanufactured. Thousands of tons of railroad rails will return after the lapse of about seven years. Seven years is about the average life of a steel rail, and it will come back into our scrap iron market. The manufacture of open hearth steel requires a certain percentage of wrought iron or wrought steel. The idea of the committee in framing this schedule as it is framed was to afford sufficient scrap iron to help the manufacturers of open hearth and basic steel to have sufficient scrap iron for them to carry on their operations.

It seems to me that if there is anything that is just and fair, it is to afford those people who use steel rails and who are compelled to buy their steel rails in a protected market, a protected market in which to sell their scrap. There will be an abundance of it. The matter came up in the committee in its hearings and the pig iron manufacturers did not seem to suspect that there would ever be a disposition to make any difference between pig iron and scrap iron.

There is another thing that evidently escaped the attention of the committee. The language in this bill is: "Iron in pigs." I call the attention of the committee to the fact that every provision in a tariff bill is construed most favorably in favor of the importer. Every taxing law belongs to that class of laws which are strictly construed. If there be even any ambiguity, it will be resolved in favor of the man paying the tax. If there be two meanings, that meaning must be accepted which is most in his favor. The blast furnaces in Europe exporting pig iron to this country would simply run its metal into some other form—break it up into scrap—and it could not bear the duty on "iron in pigs." I think an amendment should go through correcting this.

Charcoal Iron Bars.

The reduction in the duty on charcoal iron bars fram $12 to $6, while leaving the ordinary iron bar at $8, is another feature of the Payne bill to which Mr. Kennedy takes exception. Regarding this change, he said:

The only thing that I can find in the hearings that would seem to justify so extraordinary a change of law, placing this higher grade of iron below the ordinary merchant iron, seems to be a letter which I find on page 1944 of the hearings, of James A. Coe, an importer, I take it. He is called an "iron and steel merchant" of Newark, N. J. The point he makes in his letter is that Swedish iron smelted by the use of charcoal is necessary to make our high grade of cutlery, and therefore that it ought to come in free. This matter seems to be one that was overlooked by these people who have in this country been manufacturing iron by processes that make as good iron as charcoal iron and as good iron as the Swedish iron. The process of making steel, known as the basic open hearth process, makes as good iron as the Swedish iron by keeping out of the metallic iron the impurities that are brought into it by smelting the iron with coal.

Phosphorus and sulphur in coal depreciate the value of iron. By the basic process of making steel the heat is blown down on top of the iron, and the sulphur and other impurities do not pass into the steel at all; so that by our modern processes we make as good iron as they can make in Sweden or anywhere else by the charcoal process. I think that that should be corrected, because in making changes from the Dingley law they ought to be made in a sort of uniform way, so as not to misadjust and make trouble for the manufacturers who make steel by the basic open hearth process. If any industry in this country should be protected, it should be those using new methods, which are being perfected every day.

The Tin Plate Drawback.

Mr. Kennedy has also appeared as the champion of the tin plate makers, who desire that their product shall be exempted from the provision allowing drawback on imported materials used in the manufacture of goods for export, or, at least, that the drawback allowed should be reduced to 50 per cent. of the duties. In discussing this item, he said:

When the Dingley law went into effect a great many tin plate mills were started in my district. A great industry was built up; thousands of men learned the trade of making tin plate. I think, perhaps, capitalists and workingmen overestimated the needs of this country in the matter of tin plate. At any rate, the tin plate mills throughout the North are idle a greater part of the year than any other mills we have that are interested in the iron trade. The laboring men come through me with a petition to this House. They ask the American Congress to amend this bill so that one-half the rebate paid on tin plate manufactured into cans and sent out again shall be retained, and it seems to me that their appeal is reasonable and that it ought to be acceded to. They tell me that they are willing to throw off 25 per cent. from their scale of wages if the Congress will only do this, to help them to manufacture the tin plate that goes into export tin. Tin cans are made from the tin plate that is brought into this country. There is scarcely any labor in making the tin cans. Machines have been invented which are so perfect that all the work that is done is to feed the tin plate into the machine. An engineer, a fireman and one man to feed the plate comprise all the work there is about it, and the cans come out completely made and soldered up.

In answer to inquiries by his colleagues on the floor, Mr. Kennedy admitted that large quantities of American products were shipped abroad in cans made of imported plate with benefit of drawback, but he insisted that the principal beneficiary of the tin plate drawback was the Standard Oil Company.

Pig Iron and Iron Ore.

An interesting feature of the debate during the week was the argument presented by Representative Slemp, the only Republican member from Virginia, who incorporated in his remarks the protests of several iron and steel making concerns in his State, urging the retention of the duties on pig iron and iron ore. He quoted Horace L. Haldeman, second vice-president of the Pulaski Iron Company, in part, as follows:

Free iron ore means a loss of revenue to the Government, with no benefit to the consumer of pig iron, but a loss to labor, the mine owner and transportation lines in this country. The only apparent benefit derived through free iron ore would be to the blast furnaces near tidewater, which, owing to their situation, no longer have an ore or fuel supply near and are unable to compete during periods of depression with the blast furnaces that do have such facilities, with short hauls for the raw materials, and were for that reason erected at such points. The blast furnace owners near tide admit, when pressed, that they do not purpose reducing the price of pig iron to the consumer to correspond with the duty saved on free ore, as in that case they would derive no benefit themselves; therefore, as the consumer of pig iron does not use iron ore, there would be no gain to him through free ore, but a loss of revenue to the Government and trade of other regions of this country to support an artificial condition. The supply of iron ore in the United States is so great that the argument of the necessity for raw material does not enter into the question. The price of pig iron is governed, not by the furnaces near tidewater, but by the competition of the furnaces in various other regions having the raw material near, among which are those of Virginia and Alabama, notwithstanding the high freight rates on pig iron of from $3 to $4.60 per ton.

The tidewater furnaces simply follow the others in price so long as they can; therefore the consumer of pig iron near tidewater, who neither buys nor mines iron ore, would derive no benefit either as to supply or price of pig iron through free iron ore. About one-half of the product of the blast furnaces in Virginia is marketed in Pennsylvania, New York and the New England States. As the value of the iron

ore in the ground in Virginia only represents about 25 cents per ton, any reduction in cost would have to be at the expense of labor, which, as shown by the brief of Joseph G. Butler, Jr., to the Ways and Means Committee of the House, filed January 20, 1909, runs in Virginia from $2.05 to $2.30 per ton of ore.

The duty on pig iron should not be reduced below $4 per ton, which is far from excessive. We do not believe that there is at present any region in this country that can place pig iron at tidewater at a less than actual cost of $17 per ton. The best of foreign pig iron, including $4 duty, can be delivered here at $18 per ton, allowing a good profit to the producer, and during seasons of industrial depression at much lower figures. It is claimed by reliable authority that German pig iron can now be delivered at New York, Boston, Philadelphia or Baltimore without any loss to the producer at $15.21 per ton, and English iron at $15,98, including $4 duty. The greatest competition we have to fear is from Germany, where industrial conditions are weak. The United States would be an attractive dumping ground for German surplus stock, even at prices which would yield less than the cost of production there.

If you will refer to the brief of Joseph G. Butler, Jr., above mentioned, you will note that from the reports furnished him the cost of all labor to produce a ton of pig iron in Virginia, including that for the ore, fuel and limestone entering into it, but excluding that for transportation, ran from $6.22 to $9.42. Every ton of foreign iron that takes the place of Virginia iron means that the labor alone of your State would lose that much, exclusive of the losses of the manufacturers and transportation companies.

A portion of the trade could be saved to our country if we went back to the wage scale of past years, but to do so at present would mean that the laborer could not decently support his family. When trade is prosperous foreign pig iron is freely imported. The present duty is sufficiently low to prevent excessive prices here, and the Government derives a duty of $4 per ton.

Mr. Slemp also read a letter from the Low Moor Iron Company, Low Moor, Va., regarding the duties on pig iron and iron ore, as follows:

The Virginia furnaces are very much interested in the retention of the duties on pig iron and iron ore. In the brief submitted by Joseph G. Butler, Jr., to the Ways and Means Committee, there were letters from three Virginia furnace companies going into the question of costs, showing the necessity of protection for our Eastern seaboard trade. One report was by the Virginia Iron, Coal & Coke Company, one by our own company, and one by a company "south of the Mason and Dixon line," which, I understand, was the Pulaski Company.

Although in the Northern district and in Alabama there has been a great increase in the production of pig iron in the last 10 years, I do not know of a single new furnace having been built in Virginia. This speaks for itself of the uncertainties of making pig iron in Virginia. In other words, it is proof that there is not sufficient profit in the business in Virginia to warrant additions to the number of furnaces which were built prior to 10 years ago. During the present depression fully eight-tenths of the Virginia pig iron has been sold in the Eastern seaboard territory.

Virginia furnaces are located at such a distance from tidewater that it is not probable that they will be able to use imported ores if these are made free of duties. On the other hand it would be a disadvantage in that the eastern Pennsylvania and New York State furnaces would be able to make cheaper pig iron with cheaper ore and place the Virginia furnaces at a greater disadvantage than at present to compete in our present best market.

Further, in this connection, I would state that the Alabama furnaces are to-day delivering pig iron in Lynchburg at lower prices than we can make and deliver iron there.

As you are probably aware, the per diem paid laborers by the Virginia furnaces is as low as it should be, considering cost of living, and with an active demand for labor there would be a decided shortage in laborers unless the Virginia furnaces are kept in position to advance wages with any advance in the price of pig iron.

I have had experience in making pig iron in Ohio and Kentucky, and I can say truthfully that the Virginia furnaces contend with a great many more difficulties than those located in the above States. I do not know of any State which requires the continuance of a high protective tariff more than Virginia.

The interest manifested in the metal schedule in Virginia, Tennessee and Alabama, as evidenced by hundreds of communications that have reached not only members of the Ways and Means Committee, but of the House generally, has been a notable feature of the tariff campaign. W. L. C.

The Sessions Foundry Company, Bristol, Conn., manufacturer of large and small castings for a very great variety of trades, has issued a beautifully printed and handsomely illustrated *brochure*, giving a biography of its founder, description of its works and a history of the institution, reprinted from the Hartford *Courant*. The business was established by President William E. Sessions in the spring of 1879, who at that time induced his father to join with him in purchasing the business of the Bristol Foundry Company. The plant was a modest one, employing about 20 workmen and melting about 2 tons of iron every second day. Under the management of Mr. Sessions the business has grown to large proportions. The main foundry building is now 630 ft. long, 110 ft. wide and 60 ft. high at the ridge. It is equipped with two 25-ton electric traveling cranes and various side cranes. Trolley systems are provided throughout the foundry for handling small ladles of iron. A narrow gauge railroad runs throughout the entire works, which take up a considerable portion of a 30-acre tract of land. In ordinary times the company employs about 600 people. Mr. Sessions is also president and principal owner of the Sessions Clock Company and president of the Bristol Trust Company.

The Milliken Brothers Receivership.

The United States District Court, New York, made an order on April 5, authorizing August Heckscher, William L. Ward and J. Van Vechten Olcott, receivers of Milliken Brothers, Inc., to continue the business until April 17. After that date no new business is to be undertaken, though existing contracts will be carried out.

The receivers stated to the court that it is unwise to continue the business longer than is absolutely necessary on account of the bad condition in the steel trade. The creditors' committee, representing $2,700,000 of indebtedness, including all the banks, various other creditors and 90 per cent. of the stockholders, asked an extension of 60 days, but the court decided to make it only 12 days. The creditors' committee has prepared a plan of reorganization, but it will require 60 to 90 days to negotiate with the 600 creditors, besides raising the cash, the latter being the less difficult of the two. The stockholders also have a plan in circulation to which $700,000 out of $1,600,000 is already conditionally committed, but it will take 90 days to consummate it.

The receivers, since they took charge on June 10, 1907, have completed the contracts then on the books of the company by expenditures of $1,464,167. There was invested in these contracts $456,999, and they realized $575,536 above all expenses, showing a net profit of $118,537. They also saved the estate from heavy losses for damages for noncompletion of work. They now have on hand $490,000, after payment of $360,000 to mortgage bondholders and for conservation of the steel plant on Staten Island. They have taken contracts for $3,500,000, have received on work completed a profit of $50,000 and expect to realize $30,000 on uncompleted contracts, making with the $118,000 profit above mentioned and $23,000 interest on bank balances, a total net profit of $221,000.

Activity in Factory Sites at Indiana Harbor.—Adrian C. Honore, representing the Potter Palmer estate, Chicago, has bought 125 acres of factory sites at Indiana Harbor, Ind. The land has excellent dockage facilities and it has been held at $5000 to $6000 an acre. It is close to the Frick tract and is near the plant of the American Steel Foundries. It is reported that the Jordan Car Works of Chicago Heights will cover 15 acres of the land with car and repair shops, and that a shoe factory and woolen mill have bought sites. The McCormick estate of Chicago has bought 80 acres, 40 adjoining the Palmer estate tract and fronting the Calumet Canal, and 40 across the canal and fronting it and adjoining the Frick tract. The Interstate Iron & Steel Company has purchased a location for large additions to its mills there. The 80 acres of the McCormick estate cost $500,000. The two deals in Calumet River lands are the largest in the history of that region, with the exception of the purchase of the site for the new city of Gary, which is nearby.

PERSONAL.

Thomas F. Cole, Duluth; E. C. Converse, New York, and Thomas Morrison, Pittsburgh, are on the Board of Directors of the newly incorporated International Smelting & Refining Company.

Otto P. Jahn, chief engineer of the Vilter Mfg. Company, Milwaukee, Wis., celebrated the twentieth anniversary of his connection with the works with a banquet.

Walter E. Meyer, Milwaukee, Wis., has been made superintendent of the Heisler Engine Company's works, St. Mary's, Ohio. For several years he has been inspector of steam turbine and gas engine construction at the Allis-Chalmers Company's West Allis shops.

P. Broglio, the technical director of the A. G. Duesseldorfer Roehrenindustrie, a large merchant pipe plant at Duesseldorf, Germany, is now traveling in this country.

A. R. Young, 818 Fisher Building, Chicago, has resigned his position as Western agent of the Fort Pitt Bridge Works of Pittsburgh, Pa., in order to become a member of the firm of W. R. Carter & Co., engineers and contractors, Lawrence, Kan. H. C. Breidert of the Pittsburgh office of the Fort Pitt Bridge Works, has assumed charge as its Western agent, with his office as above indicated in the Fisher Building, Chicago.

The Illinois Steel Company, Chicago, has organized the department of raw materials. C. F. Collins has been installed as manager of this department, and has assumed charge and direction of coke, coal, limestone and scrap requirements for all plants of the company.

J. E. Johnson, Jr., has resigned his position as manager of the Princess Furnace at Glen Wilton, Va.

Walter L. Clark, vice-president of the Niles-Bement-Pond Company, New York, has returned from an extended trip to Europe.

Joseph Fowler, general foreman at the plant of the Hamilton Machine Tool Company, Hamilton, Ohio, has resigned to become general superintendent of one of the large machine shops of Milwaukee, Wis. He was identified with the Hamilton plant for 14 years.

E. H. Stevens, formerly superintendent of plants of the Republic Service Corporation of New Jersey, has resigned that position to become vice-president and general manager of the Bird-Archer Company, manufacturer of boiler compounds, 90 West street, New York. Mr. Stevens has had 15 years' experience in power plant operation, costs and management, and he is an expert in the use of boiler compounds.

George D. Evans, formerly of Sharon, Pa., has succeeded W. G. Brangham as superintendent of the Chester, W. Va., mill of the American Sheet & Tin Plate Company.

August Thyssen, Jr., of Thyssen & Co., Muelheim -am-Ruhr, Germany, is now in this country. The firm of Thyssen is one of the largest steel makers of Germany.

H. Foster Bain has resigned as director of the Illinois Geological Survey to become associate editor of the *Mining and Scientific Press* of San Francisco.

F. Schkommodau and M. Brechtel, connected with the engineering department of Alfred H. Schutte, and who have been visiting manufacturers in this country, sailed April 3 for Europe. Mr. Schkommodau has been in this country six months and Mr. Brechtel has been here three months.

W. H. Rust of Pittsburgh has been appointed chief engineer of the wire department at the Haselton Works of the Youngstown Sheet & Tube Company.

James A. Campbell, president of the Youngstown Sheet & Tube Company, has returned from an extended sojourn at Hot Springs, Ark.

Ralph H. Binns of Hussey, Binns & Co., Pittsburgh, has returned from Europe.

George Taylor, for the past three years connected with the testing and construction department of the General Electric Company, Schenectady, N. Y., has resigned, to become a partner in the Taylor Machinery Company, 8 Oliver street, Boston, Mass.

The Bethlehem Steel Corporation's Report.

The Bethlehem Steel Corporation, whose subsidiaries are the Bethlehem Steel Company, Union Iron Works Company, Harlan & Hollingsworth Corporation, Samuel L. Moore & Sons Corporation and the Juragua Iron Company, has issued its fourth annual report, which covers the year ending December 31, 1908. The income account compares as follows with that of the previous year:

	1908.	1907.
Net manufacturing profit	$2,020,208	$2,569,252
Other income	172,147	69,705
Total net income	$2,192,355	$2,638,957
Interest on notes and advances	140,667	112,330
Balance	$2,051,688	$2,526,627
Bond interest, &c.	1,314,824	907,838
Balance	$736,864	$1,618,789
Depreciation	370,000	.....
Net income for year	$366,864	$1,618,789
Previous surplus	2,100,400	593,421
Total surplus	$2,467,264	$2,212,210
Dividends	.....	111,810
P. & L. surplus	$2,467,264	$2,100,400

The following extracts are taken from the accompanying statement by President Charles M. Schwab:

During the year there was charged to cost of operations, for ordinary and extraordinary repairs, and maintenance, $1,654,571; but this appears in the profit and loss account, only in so far as material on which work was done during the year was shipped. On the other hand, all shipments on which work was done in previous years carry in their cost their proportion of the repairs of these years. Consequently, it can be said that repairs to the amount of approximately $1,650,000 have been charged against the earnings of this year.

The total estimated amount of the orders booked by the corporation during the year is $14,458,997, with an estimated amount of uncompleted orders on hand December 31, 1908, of $7,592,502. The number of employees of the corporation on December 31, 1908, was 8615. A comparison of these items with the year previous shows as follows:

	Orders booked.	Uncompleted orders on hand.	Number employees.
1907	$15,615,018	$8,514,665	9,783
1908	14,458,997	7,592,502	8,615

The depression in business following the financial disturbance of the fall of 1907 proved to be more widespread than was generally expected, and the year ended December 31, 1908, was the most unsatisfactory that the steel industry has known for many years. The small volume of business and the lessened production resulted in high costs and reduced profits, as compared with the year previous. Under the existing circumstances, the directors feel that the results of the operations for the year, showing as they do, a surplus of earnings over and above the fixed charges and bond interest of $736,863, are quite satisfactory.

Relative to ore mining operations in Cuba the report says: "The mines of the Juragua Iron Company have continued in operation throughout the year, producing 366,678 tons of Bessemer ore, all of which was shipped to the Bethlehem Steel Company. For several years past the discovery of large bodies of iron ore on the north coast of Cuba has attracted the attention of steel and mining interests in the United States, and this development has been carefully followed by the company, with the result that there have been acquired large tracts of ore bearing lands by denouncement, purchase and lease. While the quality of the ore on these properties is not of the same standard as that on the south coast of Cuba at our present workings, recent developments in the preparation and use of the ore make it practically certain that these properties will become of great value in the future, the tonnage already proved up in the properties now owned or controlled by us being sufficient for many years to come. These mining properties constitute an asset of great value to the Bethlehem Steel Company, and the preservation and economical development of the reserves are receiving close and careful attention."

At the annual meeting, held in Jersey City, April 6, the retiring directors were re-elected.

NEWS OF THE WORKS.

Iron and Steel.

The Reading Iron Company, Reading, Pa., has awarded contracts for the construction of the No. 6 lap weld mill at its tube works, to consist of two buildings, each 90 x 280 ft., and one 90 x 400 ft., and a boiler repair shop for the Scott foundry department, 70 x 160 ft. Contract for the structural material for the buildings has been let to the Pennsylvania Steel Company and for the balance of the work to L. H. Focht & Son, Reading.

The court has authorized the Duncannon Iron Company, Duncannon, Pa., to sell its plant and real estate at auction. The sale will be held the latter part of April.

Two furnaces of the Central group of the American Steel & Wire Company at Cleveland, Ohio, are now in blast, one having gone out in March.

The Illinois Steel Company blew in one of its Joliet, Ill., furnaces in March, and all four are now active. Two furnaces in the new South Chicago group went out of blast in March. The company blew in at the beginning of March one of its stacks at Bay View, Wis., after an idleness of many months.

The Tennessee Coal, Iron & Railroad Company blew out its Alice Furnace, Birmingham, Ala., March 18.

Furnace B at the Edgar Thomson plant of the Carnegie Steel Company at Bessemer, Pa., was blown in April 1 on Bessemer iron, after being idle several months for extensive repairs. Of the 11 stacks at Bessemer 8 are now in operation, 7 on Bessemer iron and 1 on ferrosilicon.

The Lackawanna Steel Company now has two furnaces in blast at its Buffalo works, two having gone out in March.

Harriet Furnace of the Wickwire Steel Company, Buffalo, N. Y., was banked for 17 days in March, resuming on March 18.

Three furnaces of the Bethlehem Steel Company, South Bethlehem, Pa., are now in blast, Furnace E having gone out in March.

The Cambria Steel Comany, Johnstown, Pa., blew in two of its furnaces in March and now has the entire eight in blast.

The furnace of the Perry Iron Company, Erie, Pa., was blown out for repairs March 15 and is expected to resume this week.

Radford-Crane Furnace of the Virginia Iron, Coal & Coke Company at Radford, Va., was put in blast March 30.

Furnace B of M. A. Hanna & Co., at Buffalo, was blown out April 1.

It is announced that the rolling mill of the Weller Rolling Mill & Forge Company at Gadsden, Ala., will soon be put in operation.

Furnace C of the Buffalo Union Furnace Company, Buffalo, is being rebuilt, and its capacity will be increased from 130 to about 200 tons per day. The Variety Iron & Steel Works Company, Cleveland, has the contract for the steel work. Two new McClure stoves will be installed.

No. 3 Furnace of the Shenango Furnace Company, Ltd., at Sharpsville, Pa., which has been rebuilt will blow in about April 15.

The Elyria Iron & Steel Company, Elyria, Ohio, is building an addition to its finishing department, practically doubling the capacity of its plant. The new building is 90 x 200 ft.

General Machinery.

In the appropriations made by the Indiana Legislature is $170,000 for new shops, drafting rooms and laboratories for the engineering department of the agricultural experiment station of Purdue University, Lafayette, Ind. The sum of $20,000 was also appropriated for a building for the department of farm mechanics.

The Big Four Railroad will erect an eight-stall roundhouse at Elkhart, Ind., to take the place of the four-stall house burned last October.

The Commercial Club of Angola, Ind., has sold $50,000 of preferred stock of the United States Machine Company, Detroit, and the company will move its plant to Angola. The buildings to be erected will have 18,000 sq. ft. of floor space and employ about 100 men. The company manufactures artificial ice and cold storage equipment for the smaller plants.

The Kemp Machine & Foundry Company, Hattiesburg, Miss., will spend about $12,000 for additional stock and machinery for its supply and machinery department.

The City Clerk of Saskatoon, Sask., will receive bids until April 20 for a 10-ton steel crusher, elevator, screens, bins and a 10-ton road roller.

The M. I. Hibbler Machine Company, Rochester, N. Y., has been incorporated, with a capital of $50,000, by Max I. Hibbler, William Penn and Willett E. Hazard.

W. B. Armstrong, steam heating and high pressure piping, Albany, N. Y., will open a new shop at 22 Plain street about May 1 and will require the following machinery: Combination pipe threading and pipe cutting machine, emery wheel and one 5-hp. electric motor.

Foundries.

The Allegheny Valley Malleable Iron Company, Pittsburgh, whose plant at New Kensington, Pa., has been idle for about a year, has recently booked some orders and has started operations on a moderate scale, and expects to be able to run in this way for some time. The plant has a melting capacity of 60 to 80 tons of malleable iron castings per day.

The Sivyer Steel Casting Company, Milwaukee, Wis., has been in active operation at Milwaukee since February 23, and orders are reported equal to the capacity of the three crucible furnaces thus far installed.

The Weatherly Foundry & Machine Company, Weatherly, Pa., has increased its capital stock from $50,000 to $100,000, and will enlarge its plant by the erection of a steel foundry.

Power Plant Equipment.

Thomas J. Jarvis, chairman of the Executive Committee, Greenville, N. C., will receive bids until May 4 for the erection of a power house at the East Caroline Teachers' Training School and for the equipment, including boilers, engines, dynamo, &c. Specifications can be secured from Hook & Rogers, Charlotte, N. C., and H. W. Simpson, Newbern, N. C.

The City Clerk of Lehigh, Okla., will receive bids until April 15 for the equipment for the extension of the water works system.

The Vigo Electric Company has been incorporated at Terre Haute, Ind., with $200,000 capital stock, to operate an electric plant. The directors are F. M. Fauvre, P. H. White and Ansel Fatout, all of Indianapolis.

The Hazelton Water Company has been organized at Hazelton, Ind., to build and operate a water works system. C. L. Howard is secretary.

The construction of a new power house has been begun by the San Antonio Gas & Electric Company, San Antonio, Texas. The machinery and equipment has already been purchased, and the first unit installed will consist of a 2000-kw. electric horizontal turbine and three 500-hp. Stirling boilers.

The Western Ohio Railway Company, Lima, Ohio, contemplates adding an 800-kw. generating unit to its equipment.

William J. Ellis, C. W. Savage and B. R. Fakes, Andrews, N. C., intend to organize a company to place on the market a boiler designed by Mr. Ellis. It has not yet been decided whether the company will have the boilers made by contract or make them itself.

The California & Nevada Power Company, Bishop, Cal., which supplies electric current for operating the principal mines and ore mills at Goldfield, 150 miles distant, is planning additional transmission lines, aggregating 320 miles, to furnish power to Ely, Tonopah and intermediate points. When completed these will necessitate additions to the hydro-electric units now in operation.

The Madison County Gas & Electric Company, Oneida, N. Y., will soon start construction on a new boiler house and engine room building. Contracts have been placed for the equipment for the new building, which will consist of one 300-hp. Corliss engine, two 300-hp. water tube boilers and one additional generator.

Bridges and Buildings.

The contract for a steel bridge, 16 x 118 ft., near Chippewa Falls, Wis., has been let to Wetherall & Co., Chicago.

The Minneapolis Steel & Machinery Company, Minneapolis, Minn., has been awarded a contract for a steel tower and tank, to be erected at Jackson, Minn.

Contracts for the steel and sheet metal for the construction of the H. W. Johns-Manville Company's new plant at Milwaukee, Wis., have been let, the former to the Milwaukee Bridge Company and the latter to the Consolidated Sheet Metal Works, Milwaukee.

The Lackawanna Steel Company, New York, has been awarded the contract for steel work for the new passenger station to be erected at Newburgh, N. Y., for the West Shore Railroad.

Fires.

The four-story brick building on Locke street, Buffalo, N. Y., occupied by the Olin Gas Engine Company, Pennfield Mfg. Company and the Samuel C. Rogers Machine Company, was damaged $40,000 by fire April 4.

The sash weight plant of the Vulcan Detinning Company, near Seawarren, N. J., was burned March 30, the loss being placed at $25,000.

The brass foundry of George Bircher and the hose and coupling plant of the Howell Mfg. Company, Philadelphia, Pa., were burned April 3, with a combined loss of about $20,000.

The flour mill of J. A. Hinds & Co., Rochester, N. Y., was destroyed by fire April 5, the loss being about $80,000.

The buildings of the N. Stetson Piano Company and the Columbia Phonograph Company, Philadelphia, Pa., were burned April 5, the combined loss being about $50,000.

Hardware.

The American Fence Brace Company has been incorporated at Portland, Ind., with $10,000 capital stock, to manufacture metal fences, posts and supplies. The incorporators are C. W. Ayers, N. McCoy and O. H. Whitman.

The Hartford Plow Company, Hartford, Wis., will add manure spreaders to its present line of manufacture, but the existing plant is sufficient to take care of the business for the time being.

The Standard Wire Company, New Castle, Pa., manufacturer of wire goods, is installing automatic riveting machinery, rolls and brakes for the manufacture of wire baskets, &c. The company makes the Standard rubbish burner and has added another size to its line, No. 3, 20 in. in diameter and 35 in. high, which is larger than the ordinary size of rubbish burners. This is intended for parks, manufacturing plants, residences, &c.

Miscellaneous.

The city of Sierra Madre, Cal., has voted bonds in the sum of $30,000 for the construction of a municipal gas plant, but it will probably be six weeks before the proceeds of this issue will be available.

The McKeon Motor Car Company, Omaha, Neb., has sold two all steel gas engine driven cars to the Atchison, Topeka & Santa Fé Railroad.

Dr. Richard M. Mattison of Ambler, Pa., has purchased the property of the Canada Radiator Company in Lachine, Canada, for the Asbestos Mfg. Company, an Ontario corporation, of which he is president.

The Anderson Motor Company has been incorporated at Anderson, Ind., with $10,000 capital stock, to manufacture motor vehicles. The incorporators are T. Chandler Welbes, Spencer M. Hickman, Edwin G. Worden, U. Grant Hodson and E. Fred Dice.

The Muncie Wheel & Jobbing Company has let the contract for a new factory building for the manufacture of automobile wheels to cost $20,000. It will have 40,000 sq. ft. of floor space and will have a capacity of 40,000 sets of wheels annually. The Indiana Bridge Company, Muncie, has the contract for the steel framework of the building.

Hinton Graves Lee, Augusta, Ga., is organizing a company to work cement and iron properties in Georgia, the intention being to operate three cement plants and two iron works.

The new warehouse to be erected by the Belmont Stamping & Enameling Company, New Philadelphia, Ohio, will be 80 x 300 ft.

An automobile manufacturer is negotiating for a site at Kilbourn, Wis. Other industries will be located there as soon as the low priced power from the new hydro-electric plant is available.

The plant of the Outing Boat Company, Ashland, Wis., which was moved there from Kankakee, Ill., has been placed in operation.

The Kopmeier Motor Car Company, Milwaukee, Wis., will install an electric generator and use motor drive throughout its establishment.

The Dexter Mfg. Company, incorporated at South Bend, Ind., with $10,000 capital stock, will manufacture concrete mixers and supplies. The directors are F. C. Klein, W. H. Baker and George W. Zinky.

The Union Auto Company, Albany, Ind., will move its plant to buildings provided for it in Seymour, Ind. It manufactures runabouts and touring cars. New capital will be added and the business increased.

The Indianapolis Railway Mail Equipment Company has been organized at Indianapolis, Ind., with $100,000 capital stock, to manufacture railroad mail equipment supplies. The incorporators are Wm. A. Zumpfe, E. L. Killan and E. R. Treat.

A medium sized blower, barrows, shovels, riddles, &c., are required for the equipment of the new plant to make Sperry perfection expansion culverts, which is to be installed at Groton, N. Y., by the Groton Bridge Company.

The Babcock Electric Carriage Company, Buffalo, N. Y., will build a 40 x 100 ft. addition to its plant for the manufacture of electric automobiles on West Utica street.

The Lyman Mfg. Company, Buffalo, N. Y., now located at Terrace and Erie streets, has purchased the brick factory, 46 x 150 ft., with 1 acre of land, at Elmwood avenue and the Erie Railroad, and will equip the plant for the manufacture of the Austin-Lyman automobiles, metal specialties and for general machine work.

The Pennsylvania Engineering Works, Newcastle, Pa., builder of blast furnaces, converters, metal mixers and steel plate construction, has received an order from the United Iron & Steel Company, Leetonia, Ohio, for two 250 cu. ft. steel cinder cars, to be of special design to meet peculiar conditions existing at this plant.

The Pittsburgh Gage & Supply Company, Pittsburgh, has received an order from the Crescent Portland Cement Company, Wampum, Pa., for a White Star continuous oiling system, having a capacity of 5000 gal. per day, and one from the Powhatan Coal & Coke Company, Powhatan, W. Va., for a Smith-Vaile end packed turret boiler feed pump and the necessary piping equipment for a high pressure system.

The United States Sherardizing Company, Newcastle, Pa., has issued a license to the General Electric Company, Schenectady, N. Y., which permits it to sherardize, or dry galvanize, any of its material.

Consulting Engineer J. L. Phillipps, Carthage, N. Y., has completed plans for a large addition to the plant of the Susquehanna Metal Mfg. Company's plant at Susquehanna, Pa. It will be three stories high, 50 x 260 ft., of concrete and steel construction.

The Empire State Metal Wheel Company, Fort Plain, N. Y., has been incorporated by Frank J. Ehle, Lewis A. Dunckel and Robert E. Wick, with a capital stock of $20,000.

OBITUARY.

JASPER R. RAND, vice-president and director of the Ingersoll-Rand Company, died of pneumonia in Salt Lake City March 30, aged 38 years. He was the son of Jasper Raymond Rand, one of the founders of the Rand Drill Company, and was born in Montclair, N. J. He was graduated from Cornell University in 1898 with the degree of mechanical engineer, and served in Porto Rico in the Spanish-American war as a member of the First New York Volunteer Engineers. During 1899-1900 he was president of the Imperial Engine Company, Painted Post, N. Y., leaving that position to take the presidency of the Rand Drill Company, which he held until 1905. In that year he was elected vice-president and director of the Ingersoll-Rand Company, which from that time was his chief interest. Among other organizations he was a member of the American Institute of Mining Engineers, American Society of Mechanical Engineers and Engineers' Club.

JULIUS W. SCHAUB died suddenly March 30 on a train en route from New York to his home in Chicago. He was born in September, 1859, in St. Louis, Mo. In 1881 he was graduated from the Washington University of that city as a civil engineer. From that time up to 1897 he was connected with a number of iron and steel works, including the Detroit Bridge & Iron Works, Pottsville Iron & Steel Company and Hamilton Bridge Works as chief engineer. In 1898 he opened offices in the Monadnock Block, Chicago, as consulting engineer, in which work he was engaged at the time of his death.

ALBERT B. BOWMAN, machinery manufacturers' agent, St. Louis, died March 22, after a prolonged illness, aged 62 years. He was born in Berlin, Ont., and came to the United States in 1870, first residing in Michigan, subsequently spending a few years in Kansas and Texas, and permanently locating in St. Louis 35 years ago. During the most of the time since then he was actively connected with the machinery tool trade. He leaves a widow and one son, Ralph B. Bowman, who has made all the necessary arrangements to continue his father's business.

JOSEPH A. KNIGHT, Worcester, Mass., one of the founders of the Graton & Knight Mfg. Company, died April 5, aged 80 years. He was born in Leicester, Mass., was educated at Leicester Academy, and remained on his father's farm until he was 20 years old, when he entered upon an apprenticeship in a card clothing factory. Later he learned the trade of a belt maker, and in 1861 opened a factory for manufacture of leather belting at Worcester, having formed a partnership for the purpose with Henry C. Graton, under the firm name of Graton & Knight. The business grew rapidly, developing into one of the most important of its kind in the country. Mr. Knight was president of the corporation at his death. He leaves no family, his wife and a daughter having died some years ago.

Final contracts have been signed that will insure the building of a large shipbuilding plant at Ashtabula, Ohio, by the Great Lakes Engineering Works, Detroit, which now has a plant at Ecorse, near Detroit. A site covering 35 acres has been provided by the Ashtabula Chamber of Commerce. It is expected that work on the new plant will be started soon.

Pig Iron Production.

The Curtailment Movement Begun.

Active Weekly Capacity About 9600 Tons Less Than on March 1.

Direct returns from practically all the coke and anthracite blast furnaces of the country show that production is slowing down, though the movement is not marked as yet. The output was 1,832,194 gross tons in the 31 days of March, against 1,707,340 tons in the 28 days of February, or at a daily rate of 59,103 tons, against 60,976 tons in February. The 224 furnaces active April 1 had a weekly capacity of 409,217 tons, against 418,807 tons for 232 furnaces on March 1. The reduction in output thus far has been due to the blowing out of furnaces by independent steel companies, the merchant furnaces having actually produced about 100 tons a day more in March than in February. April will doubtless show a falling off in merchant iron, but the restrictive movement thus far amounts to much less than might have been expected in view of the large accumulations of pig iron.

Daily Rate of Production.

The daily rate of production of coke and anthracite pig iron by months, beginning with January, 1907, is as follows:

Daily Rate of Pig Iron Production by Months.—Gross Tons.

	Steel works.	Merchant.	Total.
January, 1907	45,368	25,781	71,149
February	47,068	25,970	73,038
March	45,962	25,859	71,821
April	48,226	25,659	73,885
May	47,422	26,626	74,048
June	48,574	25,912	74,486
July	46,857	25,906	72,763
August	46,635	25,959	72,594
September	47,238	25,545	72,783
October	48,855	26,284	75,139
November	36,137	24,800	60,937
December	21,273	18,542	39,815
January, 1908	21,432	12,286	33,718
February	25,717	11,446	37,163
March	27,145	12,474	39,619
April	24,185	14,104	38,289
May	24,505	13,098	37,603
June	23,923	12,521	36,444
July	25,762	13,525	39,287
August	28,952	14,899	43,851
September	31,117	16,183	47,300
October	32,217	18,337	50,554
November	32,705	19,890	52,595
December	35,172	20,986	56,158
January, 1909	35,983	21,992	57,975
February	38,367	22,609	60,976
March	36,395	22,708	59,103

The increase in the number of active Steel Corporation furnaces since February 1 and the decrease in active furnaces of independent steel companies appear in the following statement:

	Steel Corporation.	Independent steel companies.
Furnaces in blast February 1	62	49
Furnaces in blast March 1	65	45
Furnaces in blast April 1	66	39

Production of Steel Companies.

Returns from all plants of the United States Steel Corporation, the Cambria, Pennsylvania, Maryland, Lackawanna, Wheeling, Republic, Youngstown Sheet & Tube, Jones & Laughlin, La Belle, Bethlehem, Calumet, Inland, Colorado and Tennessee (Ensley) companies show the following totals of product month by month. We give separately a statement of the output of spiegeleisen and ferromanganese, which is included for each month in the total production:

Production of Steel Companies.—Gross Tons.

	Pig.—Total production.—			Spiegeleisen and ferromanganese.	
	1907.	1908.	1909.	1908.	1909.
January	1,406,397	664,415	1,117,823	20,254	12,325
February	1,317,923	745,802	1,073,363	9,402	10,046
March	1,424,827	841,502	1,128,153	13,750	23,743
April	1,446,788	725,548	.....	12,363	....
May	1,470,080	759,674	.....	17,823	....
June	1,457,230	717,689	.....	15,958	....
July	1,452,557	798,639	.....	10,250	....
August	1,445,685	897,052	.....	14,932	....
September	1,417,153	933,514	.....	8,938	....
October	1,514,521	996,481	.....	12,174	....
November	1,084,114	981,167	.....	15,882	....
December	659,459	1,090,339	.....	6,510	....

March Product by Districts.

The table below gives the production of coke and anthracite furnaces in March and the four months preceding:

Monthly Pig Iron Production.—Gross Tons.

	November. (30 days)	December. (31 days)	January. (31 days)	February. (28 days)	March. (31 days)
New York	123,640	138,445	128,773	110,392	117,219
New Jersey	16,273	18,680	21,144	19,518	19,577
Lehigh Valley	45,763	52,172	53,144	50,762	49,072
Schuylkill Val.	51,397	47,237	56,449	51,447	58,169
Lower Susquehanna and Lebanon Val.	32,800	38,190	49,691	49,379	44,650
Pittsburgh Dis.	398,314	410,887	416,643	388,031	407,148
Shenango Val.	92,187	103,549	94,741	84,609	85,321
West. Penn	89,094	99,520	107,060	116,711	139,873
Md., Va. and Kentucky	51,110	53,369	56,464	52,257	56,402
Wheeling Dis.	24,593	39,317	54,176	53,735	58,156
Mahoning Val.	123,122	152,599	158,407	141,405	160,357
Central and North. Ohio.	113,281	132,590	129,174	124,650	126,719
Hocking Valley, Hanging Rock and S. W. Ohio	29,660	41,626	44,410	42,772	48,521
Mich., Minn., Mo., Wis., Colo.	57,952	63,839	67,830	60,512	72,481
Chicago Dist.	159,395	169,085	177,663	196,061	219,009
Alabama	139,013	148,611	149,280	135,374	139,907
Tennessee, Georgia and Texas	30,260	31,196	32,511	29,725	29,613
Totals	1,577,854	1,740,912	1,797,560	1,707,340	1,832,194

The list of furnaces blown in between March and April includes Topton in the Schuylkill Valley, one Carrie, one Duquesne and one Edgar Thomson in the Pittsburgh District, two Cambria in western Pennsylvania, Radford-Crane in Virginia, one Joliet and one Bay View of the Illinois Steel Company and Tod in the Mahoning Valley. Among furnaces blown out last month were Zenith in Minnesota, one Buffalo Union and two Lackawanna at Buffalo, Brooke in the Schuylkill Valley, one Bethlehem in the Lehigh Valley, Alice in the Shenango Valley, Colonial and Perry in western Pennsylvania, one Steelton in the Lower Susquehanna Valley, Longdale in Virginia, Martins Ferry in the Wheeling District, one Central in northern Ohio, two South Chicago of the Illinois Steel Company, Hannah in the Mahoning Valley, Alice of the Tennessee Company in Alabama and Embree in Tennessee.

Capacity in Blast April 1 and March 1.

In the following table is given the weekly capacity of coke and anthracite furnaces in blast April 1 and March 1, based largely on their performance in the preceding month in each case:

Coke and Anthracite Furnaces in Blast.

Location of furnaces.	Total number of stacks.	April 1. Number in blast.	April 1. Capacity per week.	March 1. Number in blast.	March 1. Capacity per week.
New York:					
Buffalo	15	8	17,042	11	23,450
Other New York.	7	3	3,877	3	4,042
New Jersey	8	3	4,421	3	4,879
Spiegel	2	0	0	0	0
Pennsylvania:					
Lehigh Valley	25	11	10,283	12	11,495
Spiegel	3	2	791	2	696
Schuylkill Valley.	15	8	12,305	8	12,451
Low. Susquehanna	7	3	3,894	4	6,310
Spiegel	1	1	558	1	425
Lebanon Valley	10	6	5,835	6	5,925
Pittsburgh Dist.	45	35	94,482	33	91,002
Spiegel	3	3	2,857	2	1,545
Shenango Valley.	20	8	18,837	9	20,499
W. Pennsylvania.	27	19	30,597	19	29,044
Maryland	4	2	4,424	2	4,025
Wheeling District	14	4	11,710	5	13,434
Ohio:					
Mahoning Valley.	20	14	37,709	14	35,112
Central and North. and Michigan.	22	13	30,999	14	33,488
Hocking Valley, Hang. Rock and S. W. Ohio	15	12	10,974	12	10,983
Illinois and Indiana	27	18	46,747	20	48,875
Spiegel	2	1	1,162	0	0
Minn. and Wis.	7	4	5,427	4	5,567
Missouri & Colorado	7	4	8,036	4	7,336
The South:					
Virginia	23	10	7,161	10	6,195
Kentucky	5	2	1,896	2	2,093
Alabama	46	21	31,015	22	32,843
Tennessee	18	8	5,798	9	6,718
Georgia & Texas	3	1	380	1	375
Totals	401	224	409,217	232	418,807

The Curve of Pig Iron Production.

In the diagrams below are plotted the curves of coke and anthracite pig iron production for the past 27 months. The first shows graphically the fluctuations in product by

months in this eventful period. While its plotted lines represent accurately the performance of the furnaces in each month, they do not show the changes in the rate of output, since the months are of unequal lengths. Accordingly the second diagram has been prepared, representing the daily rate of production in each month, and thus showing whether there was an increase or decrease in active capacity from month to month:

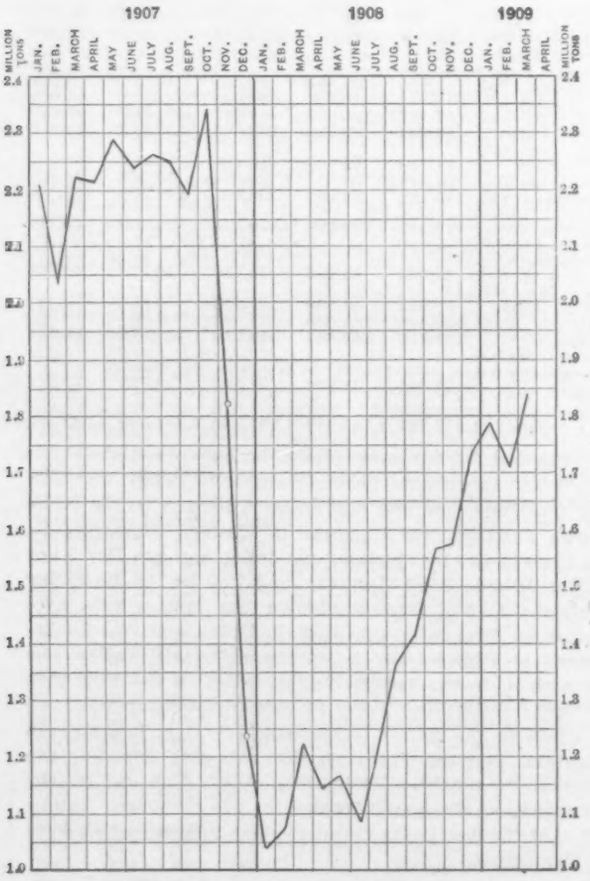


Diagram of Production of Coke and Anthracite Pig Iron by Months Since January 1, 1907.

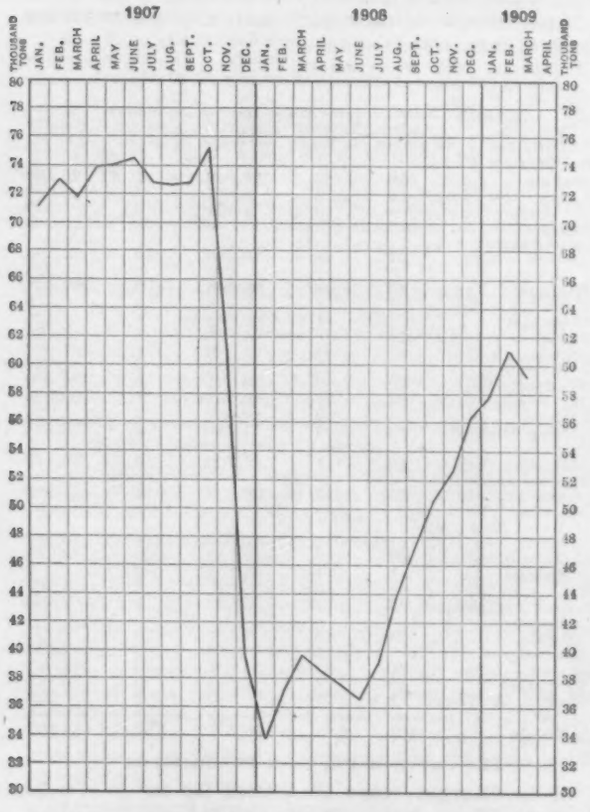


Diagram of Average Daily Production of Coke and Anthracite Pig Iron by Months Since January 1, 1907.

The figures on which the chart of daily production is based are given in the first column of the preceding page. The figures plotted in the first chart, giving production by months, are as follows:

Production of Coke and Anthracite Pig Iron in the United States by Months in 1907, 1908 and 1909.—Gross Tons.

	1907.	1908.	1909.
January	2,205,607	1,045,250	1,797,560
February	2,045,068	1,077,740	1,707,340
March	2,226,457	1,228,204	1,832,194
April	2,216,558	1,149,602	.....
May	2,295,505	1,165,688	.....
June	2,234,575	1,092,131	.....
July	2,255,660	1,218,129	.....
August	2,250,410	1,359,831	.....
September	2,183,487	1,418,998	.....
October	2,336,972	1,567,198	.....
November	1,828,125	1,577,854	.....
December	1,234,279	1,740,912	.....

A Record of Active Capacity.

The active weekly capacity in coke and anthracite iron has shown the following fluctuations since January 1, 1906, the figures representing gross tons:

	Capacity per week.		Capacity per week.
April 1	409,217	August 1	513,471
March 1	420,807	July 1	528,170
February 1	414,497	June 1	523,220
January 1, 1909	401,994	May 1	524,538
December 1, 1908	381,102	April 1	496,456
November 1	362,685	March 1	511,035
October 1	337,925	February 1	492,359
September 1	313,112	January 1, 1907	507,397
August 1	284,590	December 1, 1906	513,860
July 1	264,452	November 1	500,580
June 1	259,284	October 1	469,665
May 1	268,674	September 1	441,426
April 1	264,890	August 1	449,908
March 1	267,437	July 1	460,570
February 1	241,925	June 1	472,622
January 1, 1908	235,152	May 1	484,031
December 1, 1907	347,372	April 1	484,240
November 1	491,436	March 1	479,737
October 1	511,397	February 1	482,156
September 1	507,768	January 1, 1906	463,673

The annual meeting of the Superintendents' and Foremen's Club of Cleveland, Ohio, was held at the club rooms March 20. Reports of the officers showed the club to be in a very flourishing condition. The membership now numbers about 200. Officers for the ensuing year were elected as follows: President, John H. Francis, Kilby Mfg. Company; vice-president, J. H. White, Baker Motor Vehicle Company; treasurer, S. W. Sebelin, Cleveland Twist Drill Company; secretary, Phillip Frankel; Executive Board: The president, vice-president, treasurer, and D. B. Fuller, Westinghouse Electric & Mfg. Company; B. S. Blossom, Foote-Burt Company; John N. Mortimer, Cleveland Brass Mfg. Company; George Weisman, Johnson & Jennings Company, and L. W. Bosley, Cleveland Hardware Company.

The Chester Forging & Engineering Company, Chester, Pa., ceased to exist March 25. The property, plant, equipment, book accounts, good will, &c., have been purchased by the A. P. Witteman Company, Philadelphia, which assumes all contracts, obligations for merchandise, bills payable and mortgage. The A. P. Witteman Company is a new corporation under the laws of the State of Pennsylvania, which has also purchased the business, good will, book accounts, stock, &c., of A. P. Witteman & Co. The partnership existing between A. P. Witteman and Edgar Ashman, operating as A. P. Witteman & Co., was dissolved March 25 by mutual consent. The officers of the A. P. Witteman Company are as follows: A. P. Witteman, president and treasurer; T. W. Allison, vice-president and general manager; H. P. Arnhold, superintendent; W. H. Morrow, secretary.

The Lees-Williams Company, 806 House Building, Pittsburgh, distributer of Shelby cold drawn steel tubing, removed April 1 to 220 Penn avenue, where it has secured the necessary space for offices and for storing tubes, valves, fittings, &c.

The Detroit Iron & Steel Company, Detroit, Mich., will erect a second blast furnace, which will be slightly larger than the present one. Plans have been prepared by Arthur G. McKee, Cleveland, who has the engineering contract, and who will receive bids in a few days.

The Iron and Metal Trades

More Interest in the Pig Iron Trade.

Continued Activity in Structural Material.

There is a growing interest on the part of melters in the market since prices have openly declined to $11 basis for No. 2 at Birmingham, and since the reports that as low as $10.50 has been done under exceptional circumstances, in some cases. The cast iron pipe interests have been buying and are still in the markets in the Alabama and Virginia districts. In addition to this the agricultural implement interests have been buyers of quite a tonnage during the past few days.

Direct returns to *The Iron Age* from practically all coke and anthracite blast furnaces of the country show that production is slowing down, though the movement is not marked as yet. The output was 1,832,194 gross tons in the 31 days of March, against 1,707,340 tons in the 28 days of February, or at a daily rate of 59,103 tons, against 60,976 tons in February. The 224 furnaces active April 1 had a weekly capacity of 409,217 tons, against 418,807 tons for 232 furnaces on March 1. The reduction in output thus far has been due to the blowing out of furnaces by independent steel companies, the merchant furnaces having actually produced about 100 tons a day more in March than in February. April will doubtless show a falling off in merchant iron, but the restrictive movement thus far amounts to much less than might have been expected, in view of the large accumulations of pig iron.

During the week there has been a further decline in ferromanganese to the lowest for a long time, $41.50 being done at Baltimore, under a fair volume of business.

The structural business remains the most active, and from that point of view the most satisfactory, although prices are distressingly low. During the week there were entered upon the books of the fabricators contracts for 11,000 tons of bridge work for the Florida East Coast, 4000 tons for bridges along the line of the Chicago & Northwestern, 4000 tons for the season's requirements of the Chicago, Burlington & Quincy, 2300 tons for car sills for the Chesapeake & Ohio, 6300 tons for the Dennison-Harvard bridge at Cleveland on which the lowest bid was $49.60 per ton, erected; 8000 tons for the First National Bank at Denver, 2000 tons for a building at Kansas City, 2200 tons for the Kearns Building at Salt Lake City, 2500 tons for the Whitney Bank at New Orleans, 2000 tons for a sawmill in Mississippi and 1700 tons for the Miami copper concentrating plant in Arizona. It is expected that during the coming week the negotiations will be closed for the 40,000 tons for bridge work for the New York Central Lines and 12,000 tons for the Erie Railroad. The Lorillard warehouse, involving 5000 tons, has again come up, and the Edison power house, involving 10,500 tons, is to be closed soon. No decision has yet been reached concerning the Curtis Building in Philadelphia, calling for 14,000 tons.

Some sales of steel bars for the requirements up to January 1, 1910, of agricultural implement makers have been effected, but the great bulk of the season's business is still under negotiation.

The demand for rails is light, the only sale of any consequence made during the week having been 5000 tons to the Carolina, Clinchfield & Ohio.

A sharp international struggle is developing over the order for 50,000 tons of steel rails required for the government roads of the Argentine. A lot of 15,000 tons for Cuba is likely to go to a Canadian mill.

Figuring is going on for a floating dock for the Brazilian navy, which is to be 25 per cent. larger than our own Dewey dock.

An item of interest in the Lake ore trade is that a rate of freight of 65 cents has been named on shipments of 100,000 tons of ore to Lake Erie ports annually for a period of five years.

The merchant pipe trade is looking forward to fair employment, among the inquiries being one from the Southern Pacific for 200 miles of 8-in. oil pipe. In Louisiana 260 miles of pipe will be needed to carry natural gas to New Orleans. The National Tube Company has closed with the Kansas National Gas Company for 60 miles of 16-in. pipe.

Coke makers are cutting down their exuberant production. The market for prompt shipment remains easy, at $1.60 to $1.65 for furnace coke, at ovens.

Copper is again a shade easier and is available at 12½c. cash, for electrolytic.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Apr.7, 1909.	Mar.31, 1909.	Mar.10, 1909.	Apr.8, 1908.
PIG IRON, Per Gross Ton:				
Foundry, No. 2 standard, Philadelphia	*$16.25*	$16.25	$16.50	$17.75
Foundry No. 2, Southern, Cincinnati	*14.25*	14.25	15.75	15.25
Foundry No. 2, local, Chicago	16.50	16.50	16.50	17.70*
Basic, delivered Eastern Pa.	*15.00*	15.00	16.00	17.75
Basic, Valley furnace	*14.25*	14.50	15.00	15.50
Bessemer, Pittsburgh	*15.90*	15.90	16.40	17.65
Gray forge, Pittsburgh	*14.40*	14.40	14.90	15.40
Lake Superior charcoal, Chicago	19.50	19.50	19.50	20.50
BILLETS, &c., Per Gross Ton:				
Steel billets, Pittsburgh	23.00	23.00	23.00	28.00
Forging billets, Pittsburgh	25.00	25.00	25.00	30.00
Open hearth billets, Philadelphia	25.40	25.40	....	29.30
Wire rods, Pittsburgh	33.00	33.00	33.00	35.00
Steel rails, heavy, at mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel rails, melting, Chicago	13.00	13.00	13.00	12.00
Steel rails, melting, Philadelphia	*13.25*	13.25	13.50	12.75
Iron rails, Chicago	*15.75*	16.00	17.75	15.00
Iron rails, Philadelphia	17.00	17.00	17.00	17.00
Car wheels, Chicago	*14.50*	14.50	14.75	14.00
Car wheels, Philadelphia	14.00	14.00	14.00	14.00
Heavy steel scrap, Pittsburgh	*14.00*	13.75	14.25	12.75
Heavy steel scrap, Chicago	*12.25*	12.00	12.50	11.25
Heavy steel scrap, Philadelphia	*13.25*	13.25	13.50	12.75
FINISHED IRON AND STEEL, Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined iron bars, Philadelphia	*1.37*	1.37	1.42	1.65
Common iron bars, Chicago	*1.32½*	1.27½	1.40	1.65
Common iron bars, Pittsburgh	*1.30*	1.35	1.40	1.50
Steel bars, tidewater, New York	1.36	1.36	1.36	1.76
Steel bars, Pittsburgh	1.20	1.20	1.20	1.60
Tank plates, tidewater, New York	1.46	1.46	1.46	1.86
Tank plates, Pittsburgh	1.30	1.30	1.30	1.70
Beams, tidewater, New York	1.46	1.46	1.46	1.86
Beams, Pittsburgh	1.30	1.30	1.30	1.70
Angles, tidewater, New York	1.46	1.46	1.46	1.86
Angles, Pittsburgh	1.30	1.30	1.30	1.70
Skelp, grooved steel, Pittsburgh	1.25	1.25	...	1.70
Skelp, sheared steel, Pittsburgh	1.35	1.35	...	1.80
SHEETS, NAILS AND WIRE, Per Pound:	Cents.	Cents.	Cents.	Cents.
Black sheets, No. 28, Pittsburgh	*2.20*	2.20	2.30	2.50
Wire nails, Pittsburgh	1.95	1.95	1.95	2.05
Cut nails, Pittsburgh	1.80	1.80	1.80	1.90
Barb wire, galv., Pittsburgh	2.40	2.40	2.40	2.50
METALS, Per Pound:	Cents.	Cents.	Cents.	Cents.
Lake copper, New York	13.00	13.00	13.00	13.12½
Electrolytic copper, New York	*12.50*	12.62½	12.62½	12.87½
Spelter, New York	4.82½	4.85	4.80	4.70
Spelter, St. Louis	4.67½	4.70	4.65	4.52½
Lead, New York	4.12½	4.10	3.97½	4.00
Lead, St. Louis	4.00	3.97½	3.82½	3.85
Tin, New York	29.25	29.50	28.65	31.75
Antimony, Hallett, New York	7.75	7.75	7.75	8.75
Nickel, New York	45.00	45.00	45.00	45.00
Tin plate, 100 lb., New York	*$3.64*	$3.64	$3.89	$3.89

* This quotation has been changed for uniformity from price at furnace to delivered price at foundries, adding 35c. for switching charges.

Prices of Finished Iron and Steel F.O.B. Pittsburgh.

Freight rate from Pittsburgh in carloads, per 100 lb.: New York, 16c.; Philadelphia, 15c.; Boston, 18c.; Buffalo, 11c.; Cleveland, 10c.; Cincinnati, 15c.; Chicago, 18c.; St. Paul, 32c.; St. Louis, 22½c.; New Orleans, 30c.; Birmingham, Ala., 45c. Rates to the Pacific Coast are 80c. on plates, structural steels and sheets, No. 11 and heavier; 85c. on sheets, Nos. 12 to 16; 95c. on sheets, No. 16 and lighter; 65c. on wrought pipe and boiler tubes.

Structural Shapes.—I-beams and channels, 3 to 15 in., inclusive, 1.30c., net; I-beams over 15 in., 1.40c., net; H-beams over 8 in., 1.50c.; angles, 3 to 6 in., inclusive, ¼ in. and up, 1.30c., net; angles, over 6 in., 1.40c., net; angles, 3 x 3 in. and up, less than ¼ in., 1.50c., base, half extras, steel bar card; tees, 3 in. and up, 1.30c., net; zees, 3 in. and up, 1.30c., net; angles, channels and tees, under 3 in., 1.20c., base, half extras, steel bar card; deck beams and bulb angles, 1.60c., net; hand hail tees, 2.70c., net; checkered and corrugated plates, 2.70c., net.

Plates.—Tank plates, ¾ in. thick, 6¼ in. up to 100 in. wide, 1.30c., base. Extras over this price are as follows:

Tank, ship and bridge quality, ¼-in. thick on edges, 100 in. wide, down to but not including 6 in. wide, is taken as base.

Steel plates up to 72 in. wide, inclusive, ordered 10.2 lb. per

square foot, shall be considered ¼-in. plate. Steel plates over 72 in. wide must be ordered ¼-in. on edge, or not less than 11 lb. per square foot, to take base price. Steel plates over 72 in. wide ordered less than 11 lb. per square foot down to the weight of 3-16-in. shall take the place of 3-16-in.

Percentages as to overweight on plates, whether ordered to gauge or weight, to be governed by the Association of American Steel Manufacturers' Standard Specifications.

Gauges under ¼-in. to and including 3-16-in. plates on thin edges	$0.10
Gauges under 3-16-in. to and including No. 8	.15
Gauges under No. 8 to and including No. 9	.25
All sketches (excepting straight taper plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.)	.10
Complete circles	.20
Boiler and flange steel plates	.10
"A. B. M. A." and ordinary firebox steel plates	.20
Still bottom steel	.30
Marine steel	.40
Locomotive firebox steel	.50
Shell grade of steel is abandoned.	
For widths over 100 in. up to 110 in	.05
For widths over 110 in. up to 115 in	.10
For widths over 115 in. up to 120 in	.15
For widths over 120 in. up to 125 in	.25
For widths over 125 in. up to 130 in	.50
For widths over 130 in	1.00

TERMS.—Net cash 30 days. Pacific Coast base, 1.30c., f.o.b. Pittsburgh.

Sheets.—Minimum prices for mill shipments on sheets in carloads and larger lots, on which jobbers charge the usual advances for small lots from store, are as follows: Blue annealed sheets, No. 10 and heavier, 1.65c.; Nos. 11 and 12, 1.70c.; Nos. 13 and 14, 1.75c.; Nos. 15 and 16, 2.05c. Box annealed sheets, Nos. 17 to 21, 2c.; Nos. 22 to 24, 2.05c.; Nos. 25 and 26, 2.10c.; No. 27, 2.15c.; No. 28, 2.20c.; No. 29, 2.25c.; No. 30, 2.35c. Galvanized sheets, Nos. 13 and 14, 2.30c.; Nos. 15 and 16, 2.40c.; Nos. 17 to 21, 2.50c.; Nos. 22 to 24, 2.65c.; Nos. 25 and 26, 2.85c.; No. 27, 3.05c.; No. 28, 3.25c.; No. 29, 3.35c.; No. 30, 3.60c. Painted roofing sheets, No. 28, 1.55c. per square. Galvanized roofing sheets, No. 28, 2.80c. per square for 2½-in. corrugations.

Wrought Pipe.—Discounts on steel pipe, ¾ to 6 in., in carloads to the general trade, are 80 and 5 per cent. off list, and on iron pipe, ¾ to 6 in., are 77 per cent. off list, while to the largest jobbers one point on the base and 5 per cent. differential additional are allowed. Regular discounts to jobbers in carloads, to which 1 per cent. on the base and 5 per cent. differential are allowed to the large trade, are as follows:

	Steel merchant-pipe.		Genuine iron pipe.	
	Black.	Galv.	Black.	Galv.
	%	%	%	%
⅛ to ¼ in.	72	56	69	53
⅜ in.	73	59	70	56
½ in.	76	64	73	61
¾ to 6 in.	80	70	77	67
7 to 12 in.*	75	60	72	57
Extra strong, plain ends:				
⅛ to ⅜ in.	65	53	62	50
½ to 4 in.	72	60	69	57
4½ to 8 in.	68	56	65	53
Double extra strong, plain ends:				
½ to 8 in.	61	50	58	47

* Iron prices are for 7 to 8 in.

Boiler Tubes.—Regular discounts are as follows:

Boiler Tubes.

	Steel.
1 to 1½ in.	50
1¾ to 2¼ in.	62
2½ to 5 in.	70
2½ in.	64
6 to 13 in.	62

2½ in. and smaller, over 18 ft. long, 10 per cent. net extra.
2¾ in. and larger, over 22 ft. long, 10 per cent. net extra.

Wire Rods.—Bessemer rods, $33; chain rods, $33; basic rods, $34.

Chicago.

FISHER BUILDING, April 7, 1909.—(*By Telegraph.*)

The market is making little headway against the unsatisfactory conditions which confront it, and the belief is general that until the new tariff schedules have been finally fixed and wage readjustments settled, the present inertia will not be overcome. Meanwhile the tendency is steadily toward a more even alignment of prices, and the conviction is spreading, even among buyers, that the present range of values on such steel products as sheets, plates, bars and structural material is not susceptible of much further depression. On all these commodities prices are fairly steady at current quotations, although on desirable orders of attractive size it is not doubted that under the stress of competition some business is being taken for early delivery slightly under these figures. Such transactions are, however, incidental to rather than characteristic of the general market. The outlook for an active season in steel structural work seems to favor the continued development of new business in structural shapes, and the contracts already placed promise to furnish the mills an increased amount of specifications for plain material within a few weeks. The fact that the railroads are insisting on prompt deliveries on orders tends to confirm the existence of needs, for which purchases have been held back until they cannot longer be delayed. While it is evident that the railroads are buying for immediate requirements, the stinted economies of the present year must of necessity be equalized by more liberal purchases, for maintenance at least, before long. Consumers of both rolled products and pig iron are taking a more lively interest in contracts for future delivery, and are sounding the market on requirements as far ahead as January 1. So far not much business of this kind has been actually closed, but a movement in this direction, just begun in steel bars, is likely to result in the early booking of heavy orders from implement makers.

Pig Iron.—The market has watched with interest the determined effort that has been made by buyers during the past week to develop a $10.50, Birmingham price on third and fourth quarter deliveries. Numerous claims have been made that iron was available at this price, but in no instance have they been positively confirmed. The repeated refusal of the furnaces to consider direct offers of round lots that have been made at this price seems to indicate that $11 represents the bottom level. Moreover, the report that $10.50 was made on the recent sale of over 40,000 tons of pipe iron is generally discredited, as it is reliably reported that at least the principal part was taken on a basis of $11, Birmingham, for No. 2 Foundry. While there is not much actual buying, there are more inquiries out than at any previous time this year. Interest centers mainly in third quarter requirements, but quite a number are asking for deliveries through the entire second half. Several orders, aggregating 1600 tons, mostly for third quarter delivery, were booked by a Southern furnace at prices ranging from $11 to $11.50, Birmingham. The lowest price thus far on an inquiry for about 2000 tons put out by a Milwaukee machinery builder is reported to be $11, Birmingham. The leading Northern furnaces are not attempting to follow the market down to this point, and are in consequence taking no competitive business. The Illinois Steel Company is arranging to blow in the second furnace at Bay View on foundry iron, and some second half contracts have already been made for its product. Most observers of the foundry situation are of the opinion that the melt is not perceptibly increased, and at the present rate of consumption there is not likely to be much additional iron needed for second quarter. Apparently all that is needed to start a buying movement for the second half is the conviction by buyers that the ultimate limit of price concession has been reached by the furnaces. The following quotations are for April, May and June delivery, f.o.b. Chicago:

Lake Superior charcoal	$19.50 to $20.00
Northern coke foundry, No. 1	17.00 to 17.50
Northern coke foundry, No. 2	16.50 to 17.00
Northern coke foundry, No. 3	16.00 to 16.50
Northern Scotch, No. 1	17.50 to 18.00
Southern coke, No. 1	15.85 to 16.35
Southern coke, No. 2	15.35 to 15.85
Southern coke, No. 3	14.85 to 15.35
Southern coke, No. 4	14.35 to 14.85
Southern coke, No. 1 soft	15.85 to 16.35
Southern coke, No. 2 soft	15.35 to 15.85
Southern gray forge	13.85 to 14.35
Southern mottled	13.60 to 14.10
Malleable Bessemer	16.50 to 17.00
Standard Bessemer	17.90 to 18.40
Jackson Co. and Kentucky silvery, 6 %	19.90 to 20.40
Jackson Co. and Kentucky silvery, 8 %	20.90 to 21.40
Jackson Co. and Kentucky silvery, 10 %	22.90 to 23.40

(*By Mail.*)

Billets and Rods.—The few sales of forging billets that have been made of late have included only unimportant lots not calculated to probe the market. Based upon the Pittsburgh quotation of $23, with full freight added, the Chicago price on forging billets would be $28. Wire rod specifications are light and prices are unchanged.

Rails and Track Supplies.—The leading interest added little to its rail tonnage last week, having booked only a few small orders, the principal one, calling for 1500 tons, being from an electric traction line in the State of Washington. There is now under negotiation one lot of 5000 tons, beyond which the immediate prospects for new business are meager. The urgency of railroad needs is emphasized by the furnishing of specifications, and the demand for prompt shipment of rails and other material. In order to meet these requirements the mill at the South Works is this week running practically full. There is no holding back of specifications for track supplies which are now needed for work that cannot be delayed. From the way the demand for light rails has fallen off, it is apparent that the mine and saw mill interests are not pushing ahead. Light rails are quoted nominally at $24 for 25 lb. to 45 lb. sections, but concessions from this figure are not infrequent.

Structural Material.—Last week developed more activity in fabricated work. The American Bridge Company is credited with the closure of about 16,000 tons, in which were included contracts for the Chicago, Burlington & Quincy, the Chicago & Alton and the Sante Fé railroads. It is understood that deliveries against these contracts are in no case scheduled further than six months ahead, and it is believed that most of the railroad material will be specified and shipped within 90 days. In fact, most of the roads are urg-

ing for prompt shipment. This is probably because orders have been held back until there is now imperative need for the material. The Miami Copper Company in Arizona placed an order for 1600 tons with the Minneapolis Steel & Machinery Company, and the general contract for the First National Bank Building, Denver, Colo., 8000 tons, has been let to James Stewart, St. Louis. The Gray Construction Company, St. Louis, has been awarded the general contract for the State Bank Building, Little Rock, 700 tons, and a Kansas City Building, 2000 tons. On the tenders made last week for 2200 tons for the construction of the Kearns Building, Salt Lake City, the low bidder was the Modern Steel Company, Waukesha, Wis. No decision has as yet been reached on the 1000 tons for the Steger Building, Chicago, and the 3000 tons for the Northern Trust Building, the latter being held up for the consideration of bids on reinforced concrete. Other projects on which tenders are being considered include a sawmill to be built by the Hines Lumber Company, Chicago, at Orvisburg, Miss., 2000 tons; a new plant building for the Union Drop Forge Company, Chicago, 800 tons; and the Smart Building, Kansas City, Mo., 200 tons. Fabricating contracts continue to be taken at low prices. Plain material is regularly quoted at 1.45c., Chicago, which price is reported to be fairly well maintained on current business.

Plates.—The leading mills report a fairly good demand for plates, which finds its chief stimulus in the growing volume of orders for structural material. Outside of such specifications the orders are generally for small lots for quick shipment. Both mill and store prices are said to be fairly steady at the new level. The mill price of 1.45c., Chicago, is fairly representative of the general market.

Sheets.—The volume of business in sheets is growing slowly. Consumers are not buying far ahead, but they are ordering more liberally for current requirements, which seem to be on the increase. Prospects seem favorable for a growing consumption which will likely enlarge as the season advances. A good deal of trade in the Southwest is being diverted from the mills of the Middle West because of a discriminating differential of water freight rates which favors Eastern mills. The current schedule quoted under "f.o.b. Pittsburgh" prices is in the main being observed by the mills, and jobbers report reasonable uniformity in store prices.

Bars.—Specifications for steel bars entered by the leading mill interest for the month of March were heavier than for any month since 1907. So far this month they have been coming in at a fairly good rate, but the implement makers are now winding up the present season's work, and continued increase from this source can scarcely be expected until building for the coming year begins. Interest is centered in the coming season's requirements, and there is a good deal of anxiety being manifested by consumers concerning contracts covering this period. Some, it is understood, have already been made, but the extreme limit, we are advised, has been restricted in every case to July 1. The independent mills report no bookings beyond that date. The price basis upon which season's contracts have been negotiated has not been disclosed, further than that it is not above the current rate of 1.35c., Chicago. The demand for bar iron is extremely light; so much so, in fact, that mills are making no effort to stimulate buying by further cutting of prices. The market may be fairly quoted at 1.32½c., Chicago, this being the limit fixed by a prominent producer.

Merchant Pipe.—Up to the present time the demand for merchant pipe has fallen short of expectations, having failed to respond appreciably to the recent cut in prices. Jobbers are buying what they need for current requirements, but that these are increasing is indicated by the moderate improvement noted in the aggregate volume of business coming out from week to week. Growing activity in new construction of various kinds, it is believed, will soon be reflected in a livelier interest in pipe. The new discounts are said to be subject to no irregularity of moment.

Boiler Tubes.—The scarcity of new work in boiler shops is emphasized by the lack of orders and inquiries for merchant tubes. The demand is confined to small purchases for incidental needs, which are largely supplied from jobbers' stocks. Trade in locomotive tubes is equally light.

Merchant Steel.—Implement makers are principally concerned with the question of future contracts, but as yet the mills have not begun booking orders beyond July 1. From the number of inquiries received, it is believed that negotiations of this character will not be much longer postponed, though it seems doubtful if the usual custom of contracting a year ahead will be considered by the mills on a basis of present prices. Few new orders are being placed, and since the makers of agricultural machinery are winding up the season's work specifications from such sources are correspondingly light.

Cast Iron Pipe.—Aside from the lettings heretofore reported, most of which, including the 10,000 tons required by the city of Cheyenne, will probably be placed this week, no lots of importance are in immediate prospect. There are, however, a number of lots of 100 to 300 tons coming up in various parts of the country, and the general demand in routine orders is somewhat better. Inquiries from the railroads are more numerous, and, considering their long absence from the market, considerable is expected from this source. An inquiry for 1500 tons of railroad culvert pipe will likely be placed within a few days. Prices are unchanged and we quote per net ton, Chicago, as follows: Water pipe, 4 in. in diameter, $27.50; 6 to 12 in., $26.50; 16 in. and up, $24.50, with $1 extra for gas pipe.

Metals.—While there has been some fluctuation of copper prices within narrow limits, the movement has been largely of a speculative nature. The actual market has not felt this influence to any extent, either as to price or demand. The trading of last week brought out a fair volume of business from consumers who are buying to supply actual need. Lead is somewhat firmer, although relatively inactive. Old metals remain practically stationary. Quotations are as follows: Casting copper, 12¾c. to 13c.; lake, 13¼c. to 13½c., in car lots, for prompt shipment; small lots, ¼c. to ⅜c. higher; pig tin, car lots, 31c.; small lots, 33c.; lead, desilverized, 4.05c. to 4.15c., for 50-ton lots; corroding, 4.30c. to 4.40c., for 50-ton lots; in car lots, 2¼c. per 100 lb. higher; spelter, 5c. to 5.10c.; Cookson's antimony, 10½c., and other grades, 9¾c. to 10¼c.; sheet zinc is $6.75, f.o.b. La Salle, in car lots of 600-lb. casks. On old metals we quote: Copper wire, crucible shapes, 13c.; copper bottoms, 11¼c.; copper clips, 11c.; red brass, 11¼c.; yellow brass, 9c.; light brass, 7c.; lead pipe, 3.75c.; zinc, 2½c.; pewter, No. 1, 21c.; tin foil, 23c.; block tin pipe, 26c.

Old Material.—There seems to be a well defined feeling among dealers that prices are now close to bottom and that the trend hereafter is likely to be upward rather than downward. This tendency is in a slight degree manifested in steel scrap which begins to show a little firmness. There has been some quiet buying of heavy melting steel during the week by some of the larger consumers, which has had the effect of moving this grade up at least 25 cents. Some signs of reaction are also noted in rerolling steel rails, a small tonnage of a recent railroad list having brought the top of the market, $13.50. Owing to the desultory operation of bar iron mills, iron materials continue sluggish and are generally weaker. Railroad lists up for disposal this week embrace 4800 tons from the Chicago, Burlington & Quincy, which includes 1500 tons of rerolling steel rails; 800 tons from the Sante Fé; 500 tons from the Wisconsin Central, and a fair sized list from the Baltimore & Ohio. The following prices are per gross ton, f.o.b. Chicago:

Old iron rails	$15.75 to $16.25
Old steel rails, rerolling	13.25 to 13.75
Old steel rails, less than 3 ft	13.00 to 13.50
Relaying rails, standard sections, subject to inspection	22.50 to 23.50
Old car wheels	14.50 to 15.00
Heavy melting steel scrap	12.25 to 12.75
Frogs, switches and guards, cut apart	12.50 to 13.00
Mixed steel	10.50 to 11.00

The following quotations are per net ton:

Iron fish plates	$13.75 to $14.25
Iron car axles	16.50 to 17.00
Steel car axles	15.75 to 16.25
No. 1 railroad wrought	11.50 to 12.00
No. 2 railroad wrought	10.50 to 11.00
Springs, knuckles and couplers	11.75 to 12.25
Locomotive tires, smooth	13.00 to 13.50
No. 1 dealers' forge	9.00 to 9.50
Mixed busheling	7.00 to 7.50
Iron axle turnings	7.00 to 7.50
Soft steel axle turnings	6.50 to 7.00
Machine shop turnings	6.50 to 7.00
Cast borings	5.25 to 5.50
Mixed borings, &c	5.25 to 5.50
No. 1 mill	7.00 to 7.50
No. 2 mill	6.00 to 6.50
No. 1 boilers, cut to sheets and rings	8.00 to 8.50
No. 1 cast scrap	12.25 to 12.75
Stove plate and light cast scrap	11.25 to 11.75
Railroad malleable	11.00 to 11.50
Agricultural malleable	10.00 to 10.50
Pipes and flues	8.25 to 8.75

Cleveland.

CLEVELAND, OHIO, April 6, 1909.

Iron Ore.—It is not expected that there will be any sales or action taken on prices until the tariff question is settled. Contracts were closed during the week for the shipment of 500,000 tons of ore from the head of the lakes to Lake Erie ports at 65c. per ton, the prevailing rate. The contract will run for five years, the ore to be shipped at the rate of 100,000 tons per season. This is the first long time contract that has been made this season. The work of fitting out about 60 boats of the Pittsburgh Steamship Company has been started. These boats will be ready to start before May 1, but may not be placed in commission until later. Managers of other lines are doing very little toward preparing for the opening of navigation and it is not expected that a general start will be made much earlier than last year. Complying with orders from their organization, union firemen are refusing to work with engineers who have signed open shop contracts, and a number of firemen have quit work at this and other lake ports. Ore prices at Lake Erie docks, per gross ton, are as follows: Old Range Bessemer, $4.50;

Mesaba Bessemer, $4.25; Old Range non-Bessemer, $3.70; Mesaba non-Bessemer, $3.50.

Pig Iron.—No inquiries are coming in and no sales are reported other than a few one and two car lots. Prices are weak, but there has not been enough business to test the market. No. 2 foundry is quoted at $14 to $14.50, Valley furnace, the latter price being obtained for small lots. Shipments on contracts are less satisfactory than a few weeks ago and large stocks are being accumulated in some furnace yards. Shipments are being withheld by some of the large stove manufacturing plants as well as by other consumers. Malleable consumers are taking their iron less promptly than consumers of foundry iron. While the local market is as inactive as it has been for months, a local interest reports further improvement in the outlook in the East. Although this interest has sold only a small tonnage during the week for shipment from its New York furnace, it has received a number of inquiries for small lots and one for 1000 tons and another for 2000 tons, the inquiries being for deliveries in the second and third quarters and last half. For delivery through the second quarter we quote, delivered, Cleveland, as follows:

Bessemer	$15.90 to $16.15
Northern foundry, No. 1	15.50 to 15.75
Northern foundry, No. 2	15.00 to 15.40
Northern foundry, No. 3	14.50 to 14.75
Gray forge	14.00 to 14.40
Southern foundry, No. 2	15.35 to 15.85
Jackson County silvery, 8 per cent. silicon	20.05

Coke.—A few contracts for foundry coke for the second quarter and last half were closed during the week, and a local interest covered for its requirements of furnace coke for two stacks for the last half. We quote standard Connellsville coke at $1.50 to $1.65 for spot shipment, and $1.70 to $1.80 for balance of the year. For spot shipment and on contract 72-hr. foundry coke is held at $2 to $2.25.

Old Material.—The market continues very dull. The demand from consumers is only for small quantities, and these they are able to pick up at low prices, but no large lots are being offered at the present prices. A little firmer feeling has developed among dealers who believe that the bottom of the market has been reached and that they will get better prices by holding on a few weeks. Producers are unwilling to sell their accumulated stocks at prices that dealers and mills are now offering. Dealers' prices per gross ton, f.o.b. Cleveland, are as follows:

Old steel rails	$12.50 to $13.00
Old iron rails	16.00 to 16.50
Steel car axles	17.00 to 17.50
Old car wheels	14.00 to 14.50
Heavy melting steel	11.50 to 12.00
Relaying rails, 50 lb. and over	21.50 to 22.50
Agricultural malleable	11.00 to 11.50
Railroad malleable	11.50 to 12.00
Light bundled sheet scrap	7.50 to 8.00

The following prices are per net ton, f.o.b. Cleveland:

Iron car axles	$17.00 to $17.50
Cast borings	6.00 to 6.50
Iron and steel turnings and drillings	7.00 to 7.50
Steel axle turnings	9.00 to 9.50
No. 1 busheling	10.00 to 10.50
No. 1 railroad wrought	12.00 to 12.50
No. 1 cast	11.50 to 12.00
Stove plate	10.00 to 10.50
Bundled tin scrap	9.00

Finished Iron and Steel.—Specifications on contracts are holding up well, particularly for steel bars, but not a great deal of new business has developed. Following the reductions in February, the new prices were firmly maintained in this market for several weeks, but with reports of concessions elsewhere buyers have become more insistent on securing reductions from the regular quotations when in the market for round quantities. Mill agencies are not so confident that prices are being maintained in all cases as they were, and some reports of price concessions, particularly on steel bars, seem to be well founded. An inquiry for about 1000 tons of steel bars by a local bolt manufacturer is understood to have resulted in the placing of the order at slightly below the market. It is also understood that a concession was secured by a local manufacturer on an order for about 1100 tons of billets. Among other inquiries pending on which the buyer has been trying to secure concessions is one for 1000 tons of plates and angles for a boiler shop. Bids were received April 3 for 6300 tons of structural material for the Dennison-Harvard bridge, Cleveland, the lowest bid, $49.60 per ton, erected, being made by the McClintic-Marshall Construction Company. Other bids were as follows: King Bridge Company, $49.90; American Bridge Company, $53; Interstate Engineering Company, $56.85; Strobel Construction Company, $62.30; Cowing Engineering Company, $51.80; Pennsylvania Steel Company, $55. The contract will not be closed for about 10 days. Bids were opened April 5 for the Bailey Company's building, 800 to 900 tons. The Toledo-Massillon Bridge Company placed an order for 1200 tons of plates and shapes for a bridge in Montana, dividing it among four mills. The price of structural material is being firmly maintained, there being no evidence of price cutting in this market. After booking a large tonnage during the past few weeks the leading structural interest is understood to have decided to not take on any more for the present at as low prices as have been prevailing for fabricated work. The demand for plates shows some improvement, but orders are mostly for small lots, on which prices are being maintained. The demand for sheets is only fair. There is little demand for iron bars and one of the two local mills is still shut down. Local mills quote iron bars at 1.25c., Pittsburgh.

Pittsburgh.

PARK BUILDING, April 7, 1909.—(*By Telegraph.*)

Pig Iron.—The local situation in the pig iron trade is about as quiet as it is possible for it to get. Only an occasional small lot of iron is wanted, and there is a good deal of pressure on the part of furnaces and dealers to sell iron for delivery as far ahead as July. Stocks in furnace yards are heavy, and it is probable that some Northern merchant furnaces will soon blow out, as they have heavy stocks of iron and cannot find customers for it. We quote sand cast Bessemer iron at $15; Basic, $14.25; malleable Bessemer, $14.25; No. 2 foundry, $14 to $14.25, and Gray Forge, $13.50, all at Valley furnace, carrying a freight rate of 90c. a ton for delivery in the Pittsburgh District.

Steel.—There is very little new inquiry for billets and sheet and tin bars, but consumers who have long time contracts are specifying at a fairly satisfactory rate. There are frequent reports that the regular price of $23 for billets and $25 for sheet and tin bars, Pittsburgh, is being shaded.

Merchant Pipe.—The National Tube Company, Pittsburgh, has taken an order from the Kansas Natural Gas Company for 60 miles of 16-in. pipe for delivery in the Kansas gas fields. The Busch-Everett Syndicate of St. Louis has been granted a franchise to furnish natural gas at New Orleans. The wells are located at Shreveport, La., and it will require about 260 miles of pipe to carry the gas to New Orleans. The sizes of pipe required have not been determined, but prices will be asked for in a short time.

(*By Mail.*)

The volume of business is showing slow but steady gain, particularly in structural steel, the demand for which is heavier now than at any time in the past year. It is probable that most of the increase has gone to two or three of the leading steel interests, that have been seeking business aggressively since the open market was declared. One company reports that on light shapes, steel bars and other products rolled on bar mills its shipments in the first quarter of this year were more than double those in the corresponding period last year. The sheet and tin plate mills are busier, while the pipe mills are getting a good deal of new business and have some very large tonnage in sight for later delivery. The disappointing feature of the whole situation is the rail trade, few new orders coming out and these mostly for small lots to cover actual needs. The scrap trade is showing a little betterment in demand and prices are firmer. If the tariff bill is out of the way by June or July and we have good crops, it is expected that the last three or four months of this year will see a heavy demand. Many sensational reports are being printed in the daily press about low prices, most of which are untrue. There is no doubt that 1.30c. on structural steel and plates and 1.20c. on steel bars have been shaded in exceptional cases, but such cuts are not general by any means.

Ferromanganese.—We continue to quote foreign 80 per cent. ferro at $42, seaboard, or $43.95, Pittsburgh, for prompt shipment. On very large lots for forward delivery probably this price would be shaded.

Ferrosilicon.—A leading consumer is in the market for 100 tons and we are advised that some low prices are being made. We quote 50 per cent. at $58 to $58.50, Pittsburgh.

Muck Bar.—With no new demand, and in the absence of sales for some months, we quote best grades of muck bar, made from all pig iron, at, nominally, $25, Pittsburgh. If any business was offering a lower price would be made.

Skelp.—Consumers of sheared iron plates are specifying freely on contracts and the mills are pretty well filled up. We quote grooved steel skelp at 1.25c. to 1.30c.; sheared, 1.35c. to 1.40c.; grooved iron, 1.50c. to 1.55c., and sheared iron, 1.60c. to 1.65c., all f.o.b. Pittsburgh.

Steel Rails.—This week the Carnegie Steel Company is turning out 3000 tons of standard rails for the Texas Pacific, and is also working on some export orders for both standard and light rails. The company received new orders and specifications against contracts in the past week for about 2000 tons of light rails. Standard sections remain at $28, at mill, while light rails, 25 to 45 lb., rolled from billets, are about $23, and 16 to 20 lb. about $24, maker's mill. These prices continue to be shaded on rerolled rails. Splice bars are 1.50c., at mill.

Plates.—This trade continues quiet, and not much new business is being placed except in small orders to cover actual need. There is little municipal work in sight, and no new orders are being placed for boats, so that two of the largest consumers of plates are practically out of the market as buyers. The Carnegie Steel Company and the Jones & Laughlin

Steel Company have some fairly large contracts for plates for steel cars taken some time ago, but these will be pretty well cleaned up in the next month or six weeks, and there is not much booked ahead of that time. The general price for ¼-in. and heavier plates is 1.30c., Pittsburgh, but in exceptional cases this is shaded.

Structural Material.—The low prices ruling are bringing out a tremendous amount of new work, most of which is going to the leading interests. The American Bridge Company has taken 11,000 tons of girder and truss bridge work for the Florida & East Coast Railway and 1200 to 1500 tons for a new boiler shop for the American Locomotive Company. The McClintic-Marshall Construction Company is the lowest bidder on a city viaduct at Cleveland, about 6000 tons, and will likely get the contract. The John Eichleay, Jr., Company has taken about 400 tons for a new building for the University of Pittsburgh. The Erie Railroad is in the market for 10,000 tons of bridge work. The American Bridge Company's bookings in March were the heaviest in any one month for a year and a half or more. The market is gradually hardening to 1.30c., and buyers are finding it more difficult to find mills that will accept orders at 1.20c. to 1.25c., which was being pretty freely done just after the open market was declared.

Bars.—Specifications for steel bars entered by the leading makers in March show a heavy increase over the previous month. There is a moderate amount of new buying, and it is expected that early in May the implement makers and wagon builders will be in the market for their requirements for some time ahead. None of the leading steel bar mills is willing to book contracts at present prices for delivery farther ahead than this year, and some are reported as not willing to sell further ahead than September. The demand for iron bars is quiet, as a good many former users are now buying steel bars, owing to the lower price. We quote steel bars at 1.20c., base, Pittsburgh, and common iron bars at 1.30c. to 1.35c., Pittsburgh. High grade iron bars, such as are made by Zug, Lockhart, Brown & Co., and Sligo, bring much better prices.

Sheets.—Sentiment in the sheet trade is decidedly better. New business is steadily expanding. The American Sheet & Tin Plate Company is operating to about 60 per cent. of its capacity, and the American Rolling Mill Company has started its Zanesville Works, idle for some months. With the active resumption of building operations, a good increase in the demand for roofing sheets is expected. There is some slight shading in regular prices on the lighter gauges of galvanized sheets, but the general market is fairly strong on the basis of 2.20c. for No. 28 one pass, box annealed sheets, and 3.25c. for No. 28 gauge galvanized sheets, in carload lots for mill shipment.

Tin Plate.—A good many new orders are being placed, some nice contracts having been given last week by the canning interests, and the daily average of specifications received by the mills is quite satisfactory. The American Sheet & Tin Plate Company in the past month has started its La Belle, New Castle, Pennsylvania and Pittsburgh works, and is now operating 198 hot mills out of a total of about 212 serviceable mills, or 94 per cent. of its capacity, the only idle plant of note being the Demmler Works, which has 11 hot mills. Leading independents, such as the Pope Tin Plate Company, McKeesport Tin Plate Company, Standard Tin Plate Company and others are also operating to practically full capacity. The outlook for the tin plate trade is now regarded as very bright. It is believed that this year's pack by the salmon interests will be the largest for some years. We are advised that the base price of $3.40, Pittsburgh, for 100-lb. cokes is being well maintained.

Hoops and Bands.—On the general run of orders for hoops 1.60c., Pittsburgh, is being quoted, but on some desirable contracts recently placed this price has been shaded. Steel bands remain at 1.20c., base, one-half steel card extras, f.o.b. Pittsburgh.

Railroad Spikes.—The New York Central and the Baltimore & Ohio roads have recently placed some fair sized orders for spikes. While the new demand from the railroads is showing slight betterment, it is still confined mostly to small lots for actual needs. We quote railroad spikes at $1.65 to $1.70 for 5½ x 9-16 in. and $1.75 to $1.80, base, for the smaller sizes, in carload lots, 5c. additional per keg being charged for small lots.

Pipes and Tubes.—The largest active inquiry in the market is that of the Southern Pacific Railroad for 200 miles of 8-in. pipe, iron or steel, for oil transportation. The Barnsdall interests have placed 2 miles of 4-in. and 2 miles of 2-in., while, it is reported, but not confirmed, that the Kansas Natural Gas Company has placed its order for 60 miles of 16-in. Spang, Chalfant & Co., Inc., operating the Etna Iron & Tube Works, have orders on their books now for about 15,000 tons of 16 and 18 in. gas line pipe, being filled up for about three months. The Youngstown Sheet & Tube Company is building some new furnaces, and in the fall will be able to make pipe up to 24 in. or larger. The general demand for merchant pipe in March was active, new orders and shipments by the mills in that month showing a large increase over February. We are advised that regular discounts on iron and steel pipe, printed elsewhere, are absolutely maintained.

Boiler Tubes.—The demand for railroad tubes is showing betterment, and some good sized orders have recently been placed by the railroads. Merchant tubes are in fair demand, and we are advised that regular discounts are being maintained.

Iron and Steel Scrap.—Owing to the larger demand prices on heavy steel scrap are stronger, and this material is held firmly to-day at $14 to $14.25 per gross ton, Pittsburgh. The Pennsylvania Railroad list closed Tuesday, and offers have been made as high as $14.25 for its heavy steel scrap. The Baltimore & Ohio list closes on the 13th, and has 3000 tons of relaying rails. Apart from steel scrap the demand is light, actual sales to consumers being mostly in small lots for current needs. We have advanced prices slightly on heavy steel scrap, and dealers now quote to consumers about as follows, per gross ton, f.o.b. Pittsburgh: Heavy steel scrap, $14 to $14.25; cast iron borings, $7.50 to $8; bundled sheet scrap, $11 to $11.25; No. 1 cast scrap, $13.50 to $13.75; No. 2, $12.75 to $13; No. 1 railroad malleable scrap, $13.75 to $14; sheet bar crop ends, $14.50 to $14.75; low phosphorus melting stock, 0.04 and under, $16.50 to $16.75; rerolling rails, $14 to $14.25; steel axles, $15.75 to $16; grate bars, $10.25 to $10.50; old car wheels, $13.50 to $13.75; machine shop turnings, $9.25 to $9.50. Locomotive tires are now $16 to $16.25, having advanced sharply in the past week owing to the fact that a local consumer, the largest in the country, has recently come in the market for considerable tonnage. Locomotive axles are $22.25 to $22.50, and iron rails about $15.50. The sales of sheet bar crop ends noted in this report last week should have referred to bundled sheet scrap, this material having sold at about $10.50 at point of delivery, and we note a sale of 200 tons at about $12, delivered, carrying a freight rate of $1 a ton.

Coke.—This trade does not show any betterment either in demand or prices. Best grades of furnace coke are still being offered for prompt shipment at $1.60 to $1.65 per net ton at oven, while on contracts for balance of the year $1.75 to $1.85 is being quoted. Best grades of 72-hr. foundry coke for prompt shipment are being offered at $1.90 to $2, while on contracts for balance of the year delivery $2.25 to $2.40 is quoted. The output of coke in the two Connellsville regions last week was about 235,000 tons, a decrease over the previous week of about 15,000 tons. It being evident that too much coke was being made, a large number of ovens have been blown out, while other operators are getting ready to shut down their ovens until the demand improves.

Buffalo.

BUFFALO, N. Y., April 6, 1909.

Pig Iron.—Only a small amount of business is offering at prices which furnaces will consider, and the aggregate of sales is light, confined almost entirely to present quarter deliveries. Prices are now down to such a low level that a good many furnaces are not attempting to compete and will prefer to shut down rather than go any lower. The furnaces in this district control the local market, however, as ruling prices are considerably less than Southern iron can be delivered here for, even at the extremely low quotations reported as being made. There is a slightly greater and growing interest in last half prices on the part of buyers; but the consumers' ideas of values, which are lower than current quarter prices, are at variance with those of the furnace men. The latter, so far as can be learned, are not quoting on second half except at prices considerably over those ruling for present quarter. The following schedule approximately represents the market for present quarter deliveries f.o.b. Buffalo:

No. 1 X foundry	$15.75 to $16.00
No. 2 X foundry	15.25 to 15.50
No. 2 plain	15.00 to 15.25
No. 3 foundry	15.00 to 15.15
Gray forge	14.75 to 15.00
Basic	15.25 to 15.50
Charcoal	20.00 to 20.50

Finished Iron and Steel.—In bars and plates orders continue to come in freely and the indications are that business in these lines and in other finished products is gradually improving. In structural material new business is developing satisfactorily and a number of building projects will soon be in readiness for bids. The structural steel for the Sinclair-Rooney Building, 750 tons, for which revised bids were received this week, went to the Buffalo Structural Steel Company. It is understood it will furnish Bethlehem shapes. Bids also went in early this week for structural material for the addition to the Crosby Company's plant, about 200 tons, but the contract is not yet awarded. The James Stewart Company, Pittsburgh, was awarded the general contract for the Onondaga Hotel, Syracuse, last week, but has not yet let the subcontract for the 700 tons of steel required.

Old Material.—The market is still unsettled and life-

less, with no tendency toward buying in any line on the part of consumers, except an occasional small lot to cover immediate requirements, and no signs of improvement in the present stagnant condition are apparent. Prices remain about the same as a week ago, and are nominally as follows, per gross ton, f.o.b. Buffalo:

Heavy melting steel scrap	$13.75 to $14.25
Low phosphorus steel scrap	18.00 to 18.50
No. 1 railroad wrought	13.50 to 14.00
No. 1 railroad and machinery cast scrap	13.75 to 14.25
Old steel axles	14.50 to 15.50
Old iron axles	17.50 to 18.00
Old car wheels	14.00 to 14.50
Railroad malleable	12.50 to 13.00
Boiler plate	11.00 to 11.50
Locomotive grate bars	11.50 to 12.00
Pipe	10.50 to 11.00
Wrought iron and soft steel turnings	7.00 to 7.50
Clean cast iron borings	6.00 to 6.50
No. 1 busheling scrap	12.25 to 12.75

The Federal Rolling Mill Company, Buffalo, has taken the sales agency for New York State and New England territory for the Philadelphia Chain Works, manufacturer of welded chains.

Philadelphia.

PHILADELPHIA, PA., April 6, 1909.

While a fair volume of business is coming out in structural material and plates, the demand for other lines of finished and semifinished material continues dull. The pig iron market is stagnant and hardly enough sales have been made in some grades to establish quotations. There is no disposition on the part of consumers to take anything beyond requirements for the near future. There has already been some curtailment in pig iron production and further blowing out of furnaces is in contemplation. The tariff question still overshadows the trade and until this matter is settled no material betterment in general business is anticipated.

Pig Iron.—The Brooke Furnace, at Birdsboro, was blown out during the week and several other stacks will be blown out by other producers, unless there is a betterment in the demand in the near future. A special meeting of the Eastern Pig Iron Association has been called, to be held in this city on Wednesday, for the interchange of views as to the general situation and a further consideration of tariff matters. Producers of pig iron will, it is believed, permit some accumulation of stocks before curtailing sharply, and in this territory a number of yards are still bare of any material tonnage on the banks. But one transaction of any size is to be noted recently. The Pennsylvania Railroad placed its customary quarterly order for pig iron early in the week, aggregating 5200 tons; of this, 1150 tons was No. 2 X foundry, 3000 tons low silicon foundry and 1050 tons charcoal iron, 300 tons of the latter grade being still to be bought. This purchase covers its requirements for April, May and June, and is practically all for its Altoona shops. The bulk of the foundry iron business went to interests in the western part of the State. Outside of this particular transaction, buying has been on a small scale. The bulk of the business has been in the foundry grades, standard No. 2 X grades selling at $16.25 to $16.50, delivered, while even these prices would probably be shaded by some sellers for desirable business. Offerings of Southern foundry on a basis of $11, Birmingham, for No. 2, continue to be made without bringing out business. Consumers have offered moderate business on a $10.50, Birmingham, basis for that grade, but we can learn of no sales at that figure. Virginia irons have been dull, although one sale of 1500 tons of low grade iron to a Virginia pipe foundry is reported. Forge iron is in light demand and prices show no change. There has been no inquiry for basic iron. Consumers are curtailing deliveries rather than making any further purchases. Prices on the whole show no material change, the business offered being too small to affect quotations. For moderate lots delivered in buyers' yards, eastern Pennsylvania and nearby territory, during the current quarter, the following range of prices is quoted:

Eastern Pennsylvania, No. 2 X foundry	$16.25 to $16.50
Eastern Pennsylvania, No. 2 plain	15.75 to 16.00
Virginia, No. 2 X foundry	16.75 to 17.00
Virginia, No. 2 plain	16.25 to 16.75
Gray forge	15.00 to 15.25
Basic	15.00 to 15.25
Low phosphorus	21.00

Ferromanganese.—Consumers here are practically out of the market. Some inquiry for round lots for Western delivery is noted, but no sales are reported. In the absence of business $42, Baltimore, continues to be nominally quoted.

Billets.—Some small unimportant business has come out, almost entirely, however, for spot shipment. No large lots have been inquired for. In the absence of business of any consequence, $25.40 continues to be quoted for ordinary rolling steel for delivery in this territory, forging steel taking the usual $2 a ton advance, the customary extras applying.

Plates.—A fair demand continues, and one or two mills report an increased volume of business during the week. Orders are still small individually and seldom get above 100 tons. Inquiries for somewhat larger quantities are reported, however, one for close to 1000 tons of tank plates, which will probably be placed during the week. On small and moderate lots prices are being pretty well maintained, Eastern mills quoting from 1.45c. to 1.55c., delivered, dependent on quantity, the usual extras applying.

Structural Material.—No important transactions have been closed. The Curtis Building contract is still held in abeyance, as are also several smaller propositions. There has, however, been a fair volume of small business of a miscellaneous character which aggregates a good tonnage. Prices on plain material are unchanged, although on fabricated work low prices continue to be named. For delivery in this territory plain shapes are quoted at 1.45c. to 1.55c., according to specification.

Sheets.—The demand continues light, and mills note no improvement in the volume of business. Consumers continue to place orders in small lots for current consumption, and transactions are largely of a day to day character. For prompt shipment the following range of quotations is named for delivery in this territory: Nos. 18 to 20, 2.40c.; Nos. 22 to 24, 2.50c.; Nos. 25 and 26, 2.60c.; No. 27, 2.70c.; No. 28, 2.80c.

Bars.—Business continues along very narrow lines. There is practically no demand for large lots, current business being for small quantities for prompt delivery. Mills are not actively engaged, and some have temporarily suspended operations. Quotations still show a wide range, dependent on how anxious makers are for business at low prices. Refined iron bars are quoted at 1.37c. to 1.47c., delivered in this vicinity, while for common bars 1.28c. to 1.35c., delivered, can be done. Steel bars are maintained at 1.35c. to 1.40c., delivered, in this territory.

Coke.—Few large contracts are pending, and small prompt orders comprise the bulk of the business placed. Producers are firmer on quotations for extended delivery, but concessions are still made for spot business. Quotations are unchanged, and for delivery in buyers' yards, in this vicinity, range as follows:

Connellsville furnace coke	$3.75 to $3.90
Foundry coke	4.15 to 4.40
Mountain furnace coke	3.35 to 3.50
Foundry coke	3.75 to 4.00

Old Material.—While there have been no large sales, the market shows more firmness and prices are being fairly well maintained. Several moderate lots of heavy melting steel have been taken around $13.25 to $13.50, delivered, while borings show a trifle more strength. A better feeling is noted and it is believed that prices are pretty close to bottom. Quotations, while still nominal to a large extent, range about as follows for delivery in buyers' yards, Philadelphia and nearby points:

No. 1 steel scrap and crops	$13.25 to $13.75
Low phosphorus	17.00 to 18.00
Old steel axles	17.00 to 17.50
Old iron axles	18.00 to 19.00
Old iron rails	17.00 to 17.50
Old car wheels	14.00 to 15.00
Choice No. 1 R. R. wrought	15.00 to 15.50
Machinery cast	14.00 to 14.50
Railroad malleable	12.50 to 13.00
Wrought iron pipe	13.00 to 13.50
No. 1 forge fire scrap	12.00 to 12.50
No. 2 light iron	7.00 to 8.00
Wrought turnings	9.75 to 10.25
Stove plate	11.25 to 11.75
Cast borings	8.50 to 9.00
Grate bars	11.50 to 12.00

St. Louis.

ST. LOUIS, April 5, 1909.

As an indication of improved general business conditions, the report of St. Louis post office receipts for March is encouraging. The figures are $385,814.23 for last month; corresponding month in 1908, $347,364.96. The increase is $38,449.27, or over 11 per cent. The quarter just ended was the largest in the history of the city in point of receipts. Bank clearings for the week gained 3½ per cent. over the corresponding week last year. Reports of building operations continue encouraging, and the demand for material is increasing.

Coke.—Reports from the Connellsville District that some of the leading producers are contemplating putting ovens out of blast imparts some firmness to prices on coke, though the demand is light. On the whole the market is featureless, but as prices are low it is likely that in the near future conditions will improve. We quote Standard 72-hr. foundry $2.10 to $2.15 at oven for prompt shipment, and $2.25 to $2.50 for delivery over the year.

Pig Iron.—The sale of 10,000 tons of basic pig iron to a local steel foundry for shipment over the second and third quarters is reported by a leading agency. All the other houses state that the demand has been quite moderate and principally for small lots for shipment in the second quar-

ter, though one placed 500 tons of No. 2 for shipment over the second quarter. There is some inquiry for the second half, but no sales are reported. Though some furnaces are holding at $11.50 for No. 2 foundry, Birmingham, others are willing to accept $11, and this figure is generally admitted to be the market for the second and third quarters and that it might be accepted for shipment over the balance of the year. All things considered, the inquiry is not up to the normal for the season.

Lead, Spelter, Etc.—The demand for lead is improving and prices are higher. We quote 4.05c. to 4.10c. Lead ore is ruling at $27 per 1000 lb., Joplin. Spelter is in fair demand at 4.67½c. for regular and 4.87½c. for special brands. Zinc ore is steady at $36 per ton base. Metals are in good demand, particularly babbitt metal and antimonial alloys. Tin is up ⅝c., antimony unchanged, and copper is up ⅛c.

Old Material.—The market for scrap iron and steel shows no improvement, either in demand or prices, and but little change for the better is expected in the near future; most of what little demand there is comes from dealers. Relaying rails are in good request and a leading house reports having made some good sales this week. Stocks are becoming light. The offerings announced by the leading railroads this week are as follows: San Francisco, 1200 tons; Missouri Pacific, 2500 tons; Vandalia, 75 tons. Quotations continue quite nominal in character as regards most of the list. We quote, per gross ton, f.o.b. St. Louis, as follows:

Old iron rails	$14.00 to $14.50
Old steel rails, rerolling	12.00 to 12.50
Old steel rails, less than 3 ft.	11.50 to 12.00
Relaying rails, standard sections, subject to inspection	23.50 to 24.00
Old car wheels	12.50 to 13.00
Heavy melting steel scrap	11.50 to 12.00
Frogs, switches and guards, cut apart	11.50 to 12.00

The following quotations are per net ton:

Iron fish plates	$12.50 to $13.00
Iron car axles	16.00 to 16.50
No. 1 railroad wrought	11.00 to 11.50
No. 2 railroad wrought	10.00 to 10.50
Railway springs	9.50 to 10.00
Locomotive tires, smooth	11.00 to 11.50
No. 1 dealers' forge	8.50 to 9.00
Mixed borings	4.00 to 4.50
No. 1 boilers, cut to sheets and rings	7.00 to 7.50
No. 1 cast scrap	10.00 to 10.50
Stove pipe and light cast scrap	7.50 to 8.00
Railroad malleable	8.00 to 8.50
Agricultural malleable	7.50 to 8.00
Pipes and flues	7.50 to 8.00
Railroad sheet scrap	7.00 to 7.50
Railroad grate bars	8.00 to 8.50
Machine shop turnings	6.50 to 7.00

The Mississippi Valley Iron & Furnace Company is arranging to let the contracts for its new plant to be built in the southern section of the city, which will cover in all about 40 acres and cost upward of $500,000.

With a pledge from the city officials that Kansas City will expend $75,000 to improve the Missouri River levee and erect a public warehouse, the Commercial Club is promoting a company to navigate a line of boats between Kansas City and St. Louis. A capitalization close to $1,000,000 is pledged.

Cincinnati.

CINCINNATI, OHIO, April 7, 1909.—(*By Telegraph.*)

The first week of the second quarter finds the markets all firmer in this territory, and with iron the impression seems general that the bottom has been reached. All offices dealing in iron and steel in any form are reporting a better feeling, with orders beginning to accumulate, which applies also to the machine tool markets. Careful observers of conditions announce themselves confident that the upward turn will be reached within 15 to 30 days. Building in all forms is backward this section, so that structural material has at no time shown any special activity in consequence of the open markets, but other products have been very active.

Pig Iron.—Some big business has been closed during the week, and the largest consumers now seem ready to negotiate with furnaces. Gossip of the selling agencies deals largely with the heavy purchase of the largest pipe interest for the California contract, and one, or, perhaps, all of the three Southern furnace interests said to be most concerned are reported to have made a price of $10.75, Birmingham, for No. 2. A large Ohio pipe maker passed through Cincinnati on Monday en route to Birmingham, where he is expected to negotiate for a large tonnage for early delivery. A Philadelphia pipe maker was in this market a few days seeking 1500 tons of forge iron, for which he offered $10, Birmingham. It is believed he was unsuccessful. The market for the first time for several weeks seems to have received enough tone to hold its own, and that is what it is doing now, with the Southern furnaces forcing the issue. Little is heard of the Ohio group. A number of the Southern interests have made $11.50, Birmingham, for No. 2, their ultimatum for early delivery business and are asking $12 for last quarter business. A prominent member of one of the largest selling interests has just returned from Birmingham and reports only 80,000 tons of iron on furnace yards in the entire State of Alabama, including basic. The same authority places the amount of iron on yards in the entire Southern territory, not including about 50,000 tons in warrant yards, at 100,000 tons. There are 38,000 tons of basic on Tennessee furnace yards. While $14, Ironton, is given as the best price on Northern iron, it is practically certain that a firm offer of $13.50 on a round lot would be accepted by at least three of the Ohio interests. A large metal wheel manufacturing company in central Ohio is credited with a purchase of 600 tons of Northern and 1200 tons of Southern last week at a shade under both markets. A large agricultural implement manufacturing concern seeking foundry iron for delivery to its Indiana plant has been making offers of $13.50, Ironton, for No. 2 foundry, and is said to have closed for a modest quantity on this basis. The largest pipe interest is out with an inquiry for 2000 to 4000 tons of foundry iron for delivery to its Addyston plant. A central Ohio pipe maker is said to be seeking some iron for early delivery. We quote for early delivery, f.o.b. Cincinnati, with freight rates of $3.25 from Birmingham and $1.20 from the Hanging Rock District, as follows:

Southern coke, No. 1 foundry	$14.75 to $15.25
Southern coke, No. 2 foundry	14.25 to 14.75
Southern coke, No. 3 foundry	13.75 to 14.25
Southern coke, No. 4 foundry	13.50 to 14.00
Southern coke, No. 1 soft	14.75 to 15.25
Southern coke, No. 2 soft	14.25 to 14.75
Southern coke, gray forge	13.25 to 13.75
Southern mottled	12.75 to 13.25
Ohio silvery, 8 per cent. silicon	19.70
Lake Superior coke, No. 1	15.70 to 16.20
Lake Superior coke, No. 2	15.20 to 15.70
Lake Superior coke, No. 3	14.70 to 15.20
Standard Southern car wheel	22.25 to 23.25
Lake Superior car wheel	21.75 to 22.75

(*By Mail.*)

Coke.—Reports from the Connellsville District denote a material reduction in the number of ovens operated, aggregating something like 1000. Dealers say that there is no material change in West Virginia. The Imboden ovens, Virginia, are operating on a smaller scale, owing to the recent changes at Embree Furnace. The feeling is quite general that there may be a considerable curtailment in view of the talk of blowing out and banking furnaces. Prices are not greatly changed, normal quotations on Connellsville spot furnace brands ranging from $1.55 to $1.75, and for delivery during the last three quarters $1.75 to $2, according to grade; spot Connellsville foundry, $2 to $2.25, for delivery through the last three quarters, $2 to $2.50, according to grades. West Virginia grades: Wise County furnace, $1.60 to $1.90; foundry, $2 to $2.25. Pocahontas furnace, $1.65 to $1.85; foundry, $1.85 to $2.25.

Structural Material.—Although sales agents of the largest interests in this territory report a steadily increasing business, little new building is in sight. A sale of 138 tons was made for shipment to Memphis to go into bridge construction. On plates there are plenty of charges that 1.25c., Pittsburgh, is being done; but it is being generally denied by the largest interests who claim they are placing all business at the ruling quotation of 1.30c.

Other Finished Lines.—Although the sales agencies report business gaining in all lines, jobbers continue to report but fair business and in mostly less than carload lots. Sheets seem to be giving jobbers the most concern, new prices being encountered at every turn. On steel bars such business as is going here is claimed to be booked at 1.20c. Pittsburgh strictly, although it is claimed that some mills in this territory are shading the 1.35c. Pittsburgh price on iron bars. It is reported here that the Monon is in the market for 2000 tons of heavy steel rails. The greater part of this company's new equipment has been received.

Old Material.—There is still a great deal of uncertainty about prices of scrap, and at present a wide difference of opinion prevails between the largest interests as to the market. A careful investigation fails to reveal any recent purchase of No. 1 railroad wrought in this market at less than $12.50 to $13, although it has been quoted recently as low as $10; and in the same way the market on heavy melting steel is around $12 to $13. Cast borings are quotable at about $4 to $4.50; old iron rails, $13.50 to $14; old iron axles, $14 to $15. All dealers unite in the statement that business is stagnant.

Birmingham.

BIRMINGHAM, ALA., April 5, 1909.

Pig Iron.—A schedule of $11, Birmingham, for No. 2 foundry has been adopted as an asking price by the majority of producers, and in the absence of evidence to the contrary this figure is believed to be a correct representative of the market value. In the case of one of the leading interests, a basis of $11.50 for No. 2 is being adhered to, while one of the smaller concerns would accept the $11 schedule only for strictly second quarter deliveries. The sales reported during the week just ended aggregate some 10,000 to 15,000 tons. The most significant transaction among the reports involved 4000 tons of Nos. 2 and 3 foundry for shipment covering

the third quarter, which was engaged at $11 per ton for No. 2. A few small lots of favorite brands have recently brought $11.50 for No. 2 when prompt shipment was desired, and for 600 tons of Clifton high manganese iron, to be delivered during the next three months $13.50, Birmingham, was received. With the exception of one or more lots of 300 to 500 tons each, the outlook for the coming week is not promising. The number of inquiries recently received is small, comparatively, and where round tonnages would ordinarily have been in demand, the interest manifested does not appear to have extended further than ascertaining the views of sellers. From a certain line of foundry trade there is to be expected a limited demand owing to the proportions of previous engagements, but from the trade generally there are no indications of an acceptance of the theory that prices have reached their lowest level. On the other hand, producers are not making vigorous efforts to dispose of their surplus output, and are especially indifferent as to commitments for advanced deliveries. It is also noted that merchants have not offered their holdings at lower figures than those quoted by the furnace interests.

Cast Iron Pipe.—This market is quiet, with prices being maintained, and the outlook fairly encouraging. It is understood that three of the Southern plants will soon commence operations on the requirements at San Francisco, while the additions to order books in the shape of small contracts is quite satisfactory. The accumulation of stock at any of the local plants is not of sufficient proportions to figure in conditions and the movement during the coming weeks is expected to be fully equal to the make. A shipment of 50 cars for Cuba was recently forwarded from a local plant, which practically depleted its accumulation. We quote asking prices of Southern producers as follows, per net ton, f.o.b. cars here, which are in the main firm: 4 to 6 in., $26; 8 to 12 in., $25; over 12 in., average $24, with $1 per ton extra for gas pipe. On large municipal contracts these quotations are probably shaded.

Old Material.—It is announced that the decrease in the consumption expected at the time of last report will not take place, but so far this market has not been affected by any necessary additional provision for requirements. The demand for light cast and stove plate, which has predominated for some months, is being met largely with bargain lots, and prices considered are not representative. A change in dealers' asking prices is not authorized, and we quote nominally as follows, per gross ton, f.o.b. cars here:

Old iron rails	$13.50 to $14.00
Old iron axles	14.50 to 15.00
Old steel axles	12.00 to 12.50
No. 1 railroad wrought	12.00 to 12.50
No. 2 railroad wrought	10.00 to 10.50
No. 1 country wrought	9.00 to 9.50
No. 2 country wrought	8.50 to 9.00
No. 1 machinery	9.50 to 10.00
Tram car wheels	10.50 to 11.00
Standard car wheels	12.00 to 12.50
Stove plate and light cast	7.50 to 8.00
Cast borings	4.00 to 4.50

Metal Market.

NEW YORK, April 7, 1909.

Pig Tin.—The statistics issued March 1 showed a marked falling off in supplies. As stated last week, deliveries into consumption were large in March, amounting to 3900 tons. The arrivals, too, were heavy, and consequently the stocks at the end of the month were larger than usual, being 3708 tons, compared with 2316 tons a month previous and 855 tons a year ago. The visible supply throughout the world at the end of March was 19,208 tons, compared with 20,746 tons last month and 15,385 tons a year ago. Imports into the United States this year have been 10,600 tons. In the corresponding time last year they were 6811 tons. These figures had been well discounted in the last few days of February, and price changes during the week have been within narrow limits as follows:

	Cents.
March 31	29.45 to 29.50
April 1	29.50
April 2	29.40
April 5	29.25
April 6	29.45
April 7	29.25

The dullness of the market is well illustrated by the continuance of prices below parity. Prevailing quotations are 15 to 20 points below import cost. Stocks are large here and it is much easier to get prompt tin than a month ago. One reason for this is the fear, or supposed fear, that a duty will be put on pig tin. Contracts on which tin is to be delivered in the future now contain a clause that the buyer is to pay the duty, if any. The idea that such a duty will be levied is only seriously entertained by certain sellers. The London market closes this afternoon at £133 2s. 6d. for spot and £134 2s. 6d. for futures.

Copper.—The market is dull and although consumers are daily buying small lots for prompt shipment, there is no large business. Prices are somewhat easier and a large consumer of electrolytic would have little difficulty in securing it at 12.50c. cash, New York. In lots of 50 and 100 tons the price is 12.62½c. Lake is more or less nominal at 13c. The consumption is fair and now that the wire trade has started to pick up there is much more copper being melted in this country. The low prices ruling on brass and wire are apparently not sufficient inducement for consumers to stock up with finished material. The market is a waiting one, as there is no pressure to sell and buyers feel that they can cover their wants at any time. The export business is not as good as it was and consumption in Germany is falling off. L. Vogelstein & Co. report the consumption in Germany in January and February, 1909, as 22,120 tons, compared with 28,404 tons in the same month last year. These figures, however, represent deliveries for consumption rather than actual melting. The exports of copper from the United States in March were 20,824 tons. Since January 1 the exports have amounted to 53,900 tons, a decided falling off compared with last year, when 79,379 tons were exported in the same months. The London market closes to-day at £57 5s. for spot, and £57 17s. 6d. for futures.

Waterbury Average.—The Waterbury average for March was 12.87½c.

Lead.—A sale of 100 tons of independent lead was made Tuesday at 4.15c. The outside interests are asking 4.12½c. to 4.15c., New York, and 4c., St. Louis. The demand is small, but the market is steady, if not strong. The American Smelting & Refining Company continues to quote shipment lead in 50-ton lots at 4.10c.

Spelter.—Prices are slightly easier, sales having been made in New York at 4.82½c. In St. Louis prime western brands can be had at 4.67½c. Sellers are not accepting orders for delivery later than the end of the month. While no large business has been done, there have been numerous sales for small amounts, particularly to brass manufacturers.

Aluminum.—Trade is dull and prices are without change at 24c. for No. 1 ingots, 32c. for rods and wire and 34c. for sheets.

Antimony.—The foreign market is slowly advancing, and, taken altogether, the advances there should have influenced the market here. They were not felt, however, and trade is just as dull as ever at unchanged prices. Hallett's is offered at 7.75c., Cookson's at 8c. and less known brands at 7.50c.

Nickel.—The demand from steel manufacturers is only fair, but prices are steady, and unchanged from the last report, at 45c. for 10-ton lots and 50c. to 60c. for small quantities.

Tin Plate.—Business is not moving in the same volume as last week. Apparently buyers can satisfy their requirements with a few purchases, and their reluctance to lay in large quantities keeps salesmen busy taking small orders. While the mills are turning out a larger amount of tin plate than in a long time, not all of this is going into consumption. Prices are without change at $3.64, New York, and $3.45, Pittsburgh, for 100-lb. IC coke plates, subject to the usual rebate of 5c. per box. In Swansea Welsh plates are unchanged at 11s. 6d.

Old Metals.—Trade is so dull that it is difficult to get a fair line on prices. Those who have metal for sale are reluctant to dispose of it at prevailing quotations, and consumers finding so little difference between the price of ingot copper and scrap limit their purchases to actual nearby requirements. Excepting an advance in old lead, the following dealers' selling prices are unchanged from last week:

	Cents.
Copper, heavy cut and crucible	12.25 to 12.50
Copper, heavy and wire	12.00 to 12.25
Copper, light and bottoms	11.00 to 11.25
Brass, heavy	9.00 to 9.25
Brass, light	7.00 to 7.25
Heavy machine composition	11.25 to 11.50
Clean brass turnings	8.00 to 8.25
Composition turnings	9.75 to 10.00
Lead, heavy	3.85 to 3.90
Lead, tea	3.60
Zinc scrap	3.62½

New York.

NEW YORK, April 7, 1909.

Pig Iron.—The lower prices prevailing have led to somewhat greater interest on the part of buyers, particularly for forward delivery, but Lehigh and Schuylkill Valley makers show little disposition to follow the Southern furnaces down to the level which they have been establishing. We quote $16.25 to $16.75 for No. 1 Northern foundry, $15.75 to $16.25 for No. 2 foundry and $15 to $15.50 for No. 2 plain, at tidewater. Alabama iron is quoted $15.75 to $16 for No. 1, and $15.25 to $15.75 for No. 2 foundry.

Steel Rails.—A sale of 5000 tons of open hearth rails has been made by the Tennessee Coal, Iron & Railroad Company to the Carolina, Clinchfield & Ohio Railroad.

Structural Material.—The aggressiveness of the leading fabricating company has brought a further large percentage of recent contracts to its books, though other companies are apparently getting steel on a basis that enables them to capture occasional orders. The Florida East Coast's 206 bridges,

in all about 11,000 tons, made one of the most attractive contracts ever placed, being all plate girder work. There are 182 80-ft. girder spans, while of the remaining 24 half are of 125-ft. spans and half of 182-ft. spans. The American Bridge Company took this contract, as well as 2000 tons for the Carolina, Clinchfield & Gulf, 4000 tons of bridges for the Chicago & Northwestern and 4000 tons for the C. B. & Q. The New York Central contract, which has been worked up to about 40,000 tons, and the Erie's 12,000 tons, are likely to be awarded in the coming week, which would leave the Missouri Pacific's 7000 tons as the only large railroad bridge contract pending. The Missouri Pacific wants deliveries extending over 18 months, but fabricators as a rule are limiting their commitments to this year. The Milliken Brothers' receivers have taken the Whitney Central National Bank, at New Orleans, 2500 tons; the Virginia Bridge Company, 2300 tons for car sills for the Chesapeake & Ohio; the Minneapolis Steel & Machinery Company, 1700 tons for the Miami Copper Company in Arizona; the Pennsylvania Steel Company, 850 tons for the new mill building of the Reading Iron Company, and the Noelke-Richards Company, Indianapolis, 450 tons for the First National Bank, at Ft. Worth, Texas. The Lorillard tobacco warehouse, at Marion, N. J., 5000 tons, is again under negotiation and the Edison power house in New York, 10,500 tons, is expected to be awarded soon. A wide variation in bids on this last contract is reported. We continue to quote plain material shipped from mill for delivery at tidewater as follows: Beams, channels, angles and zees, 1.46c.; tees, 1.51c. On beams, 18 to 24 in., and angles over 6 in., the extra is 0.10c. Structural material, cut to lengths, is sold in small lots at 1.90c. to 2c.

Ferroalloys.—Low figures have been made for ferromanganese and sales are reported at $41.50, Baltimore. An inquiry for 3000 tons is in the market, the deliveries to be spread over six months. The Carnegie Steel Company is buying about 200 tons of 50 per cent. ferrosilicon for April. In this alloy American producers have the business. At the ruling prices of $60 and under, at Pittsburgh, European makers cannot compete. No quotations are available for second half delivery. A fair tonnage is being taken.

Bars and Plates.—The bar iron situation shows no improvement. The demand is so light that quite a number of Eastern mills have shut down to wait for a revival in business. Other mills in the same territory are closed on account of labor troubles. The output of bar iron at present is therefore decidedly light. Common iron continues to be quoted at 1.30c. to 1.35c. and best refined at 1.40c. to 1.50c., tidewater. Steel bars are held in a regular way at 1.36c., tidewater, but this is said to be shaded on desirable business. The local plate trade is quiet, with only a moderate run of small orders to cover current requirements of manufacturing consumers. Some inquiry has been received from Pacific Coast points for plate to be used in making riveted pipe for water works extensions. Tank and ship plates are quoted at 1.46c., tidewater.

Cast Iron Pipe.—About the only business of importance at present in sight is the expected early closing of some 4000 tons of large pipe by a gas company. The current demand is almost wholly for small lots, but the average of these is running somewhat better than in immediately preceding weeks. Inquiries are also a little more numerous and the feeling generally is more cheerful. Carload lots of 6-in. are still quoted at $23.50 per net ton, at tidewater.

Old Material.—A little more business is reported in cast scrap, stove plate and turnings, all of which are in continued moderate demand. Inquiries are better, especially for old car wheels and steel scrap, but buyers are vigorously seeking for the lowest seller. Rolling mills are out of the market at present. Dealers are closely holding the scrap they have in stock and are extremely reluctant to part with it at such figures as they are now obliged to accept. It is coming to be the general opinion that the trade is now passing through its worst experience and that an improvement cannot be far distant. Under the circumstances, therefore, dealers feel that they will be in a better position to have buyers come to them than for them to seek the buyers. Most inquiries are still regarded as simply feelers. The following quotations, which are per gross ton for New York and vicinity, represent values received on sales under some stress, as higher prices are asked on purchases made in a regular way:

Old girder and T rails for melting	$9.00 to $9.50
Heavy melting steel scrap	9.00 to 9.50
Relaying rails	19.00 to 19.50
Old iron rails	14.00 to 14.50
Standard hammered iron car axles	14.50 to 15.00
Old steel car axles	14.00 to 14.50
No. 1 railroad wrought	11.50 to 12.00
Iron track scrap	9.50 to 10.00
No. 1 yard wrought, long	11.00 to 11.50
No. 1 yard wrought, short	9.50 to 10.00
Light iron	6.00 to 6.50
Cast borings	5.00 to 5.50
Wrought turnings	6.00 to 6.50
Wrought pipe	8.00 to 9.00
Old car wheels	13.00 to 13.50
No. 1 heavy cast, broken up	11.50 to 12.00
Stove plate	9.50 to 10.00
Locomotive grate bars	9.50 to 10.00
Malleable cast	10.50 to 11.00

Iron and Industrial Stocks.

NEW YORK, April 7, 1909.

The stock market generally has shown an upward tendency, with occasional recessions, probably due to profit-taking. With some stocks the range has been somewhat wider than in recent weeks. This has been especially the case with United States Steel common, General Electric, Westinghouse Electric and Locomotive common. The companies manufacturing electric equipment have been the subject of favorable consideration on account of increasing attention being given to electrification projects on railroad lines and the increased utilization of electric power in various important operations. The range of prices on active iron and industrial stocks from Thursday of last week to Monday of this week was as follows:

Allis-Chalm., com..	15 - 15⅝	Railway Spr., com.	39 - 40¼
Allis-Chalm., pref..	46 - 47½	Railway Spr., pref.	100
Beth. Steel, com...	24 - 25	Republic, com.	22 - 23
Beth. Steel, pref...	51 - 52	Republic, pref.	73½ - 74⅞
Can, com.	8½ - 8¾	Sloss, com.	73½ - 74
Can, pref.	74 - 75	Pipe, com.	28¾ - 29¼
Car & Fdry, com..	49¼ - 50⅞	Pipe, pref.	72⅝ - 73
Car & Fdry, pref.	111½	U. S. Steel, com...	48⅞ - 51⅝
Steel Foundries	37½	U. S. Steel, pref...	113½-114
Colorado Fuel	35¾ - 37	Westinghouse Elec.	80½ - 85
General Electric..	157 -160¼	Chi. Pneu. Tool...	23 - 24
Gr. N. ore cert....	68 - 69¾	Am. Ship, com.	54¼
Int. Harv., com...	69¾ - 70¾	Cambria Steel	35¾ - 36⅝
Int. Harv., pref...	112⅝-113	Lake Sup. Corp...	18¼ - 18½
Locomotive, com..	53½ - 56½	Penna. Steel, pref.	104
Locomotive, pref.	114⅞	Crucible St., com..	7½ - 7½
Nat. En. & St., com.	13⅝	Crucible St., pref..	59¾ - 61
Pressed St., com..	38½ - 38⅝	Harb.-Walk. Ref., pref..	80
Pressed St., pref..	98½ - 99¼		

Last transactions up to 1.30 p.m. to-day are reported at the following prices: United States Steel common 50¼, preferred 113½, bonds 103⅝; Car & Foundry common 50⅛, preferred 111½; Locomotive common 55⅝, preferred 114⅞; Colorado Fuel 37½; Pressed Steel common 37¼, preferred 99; Railway Spring common 39; Republic common 22⅛, preferred 74⅛; Sloss-Sheffield common 73¼; Cast Iron Pipe common 29⅞, preferred 74½; Can common 8¾, preferred 74½.

Iron and Steel Bonds.

Chisholm & Chapman, 18 Wall Street, New York, report the following quotations April 6:

	Bid.	Asked.
Bethlehem Steel 1st ext. 5s, January, 1926	83	..
Bethlehem Steel purchase money 6s, August, 1998	115½	118¼
Buffalo Iron 5s, October, 1925	100	103
Buffalo & Susquehanna Iron 1st 5s, June, 1932	99	..
Buffalo & Susquehanna Iron deb. 5s, January, 1926	..	98¾
Dominion Iron & Steel 5s, July, 1929	90¼	91
La Belle Iron Works 1st 6s, December, 1923	103½	106
Lackawanna Steel 1st 5s, April, 1923	..	94
Maryland Steel 1st 5s, February, 1922	100	101½
Penn Steel 1st 5s, November, 1917	100	..
Pennsylvania & Maryland Steel 6s, September, 1925	109	110½
Republic Iron & Steel 1st 5s, October, 1934	98	98¾
Sloss Iron & Steel Company 1st 6s, February, 1920	106	108½
Sloss Iron & Steel Company consol. 4½s, April, 1918	94	96
Jones-Laughlin first gold 5s, May, 1939	99½	99¾
United States Steel Corporation.		
Collateral Trust 5s, Series A, C, E, April, 1951	114½	115½
Collateral Trust 5s, Series B, D, F, April, 1951	114½	115½
Sinking Fund 5s, April, 1963	103¼	103½
Union Steel 1st 5s, December, 1952	104	105
Clairton Steel 5s, 1908-1913	100	..
St. Clair Furnace 1st 5s, 1910-1939	100	..
St. Clair Steel 1st 5s, 1908-1926	100	..
Illinois Steel deb. 5s, January, 1910	100¼	..
Illinois Steel 5s, April, 1913	..	100½

All bonds quoted "and interest."

The American Car & Foundry Company reports that its net earnings from operation for the quarter ending January 31, 1909, were $721,557.20. This compares with $1,772,201.47 earned in the corresponding quarter of the previous year.

The refunding and improvement (third) mortgage recently made to the Windsor Trust Company of New York, as trustee, by the Alabama Consolidated Coal & Iron Company, Birmingham, Ala., secures not to exceed $5,000,000 50-year gold bonds, dated May 1, 1908. Of these, $3,500,000 are series A 6 per cent. bonds and $1,500,000 are series B 5 per cent. bonds. Of the total, $450,000 has been reserved to retire the $436,000 first mortgage 6s, due May 1, 1911, and $1,750,000 has been reserved to retire the outstanding $1,741,000 consolidated gold 5s, due May 1, 1933. Of the $5,000,000 issue there is thus available $2,800,000 for corporate purposes. The stockholders voted March 14, 1908, to exchange the $1,250,000 preferred stock for an equal amount of third mortgage 5s, provided the preferred stockholders subscribed at 70 for an additional $250,000 of these bonds.

Dividends.—The Nova Scotia Steel & Coal Company has declared the regular quarterly dividend of 2 per cent. on the preferred stock, payable April 15.

The Harbison-Walker Refractories Company has declared the regular quarterly dividend of 1½ per cent. on the preferred stock, payable April 20.

The Standard Underground Cable Company, Pittsburgh, has declared a quarterly dividend of 3 per cent., payable April 10.

Seattle Industrial Notes.

SEATTLE, WASH., March 27, 1909.—Armed conflict between the workmen employed by the Vulcan Iron Works and the construction crew of the Oregon & Washington (Union Pacific) was narrowly averted at the plant of the iron works on Fourth avenue south, Seattle, as a result of the determination of the railroad company to lay its tracks through the site, which it had purchased for right of way, and the equally firm determination of the iron company to receive six months' notice before vacating the premises. It is now evident that the railroad contractors will not countenance a resort to violence. A notice had been served February 1 on the Vulcan Works to vacate the place within 30 days. Claiming that they had been assured by the right of way department that they were to receive six months' notice, and that it was an impossibility to remove the heavy machinery within such short time, the officers paid no attention to the notice. On March 1 notice was served to vacate within 24 hr. This, likewise, was disregarded.

The Vulcan Works has purchased a site 270 x 540 ft. in the southern portion of the city, on the tide flats, which is to be filled in at once. As soon as the filling is done, eight modern steel fireproof buildings are to be erected, including a seven-story supply and jobbing house, machine shop, forge shop, pipe and threading shops, pattern shops and loft, structural shops and stables. The entire plant will be electrically driven, and will have 500 ft. of side track from four different transcontinental lines. The new plant, when complete, will represent an expenditure of $1,500,000, and will employ 1000 hands. The company is also planning extensive improvements in its plant at Aberdeen.

The Western Malleable Iron Company, the first of its kind in the Pacific Northwest, or, in fact, on the coast, has secured a site of 5 acres at Renton, south of the city, and expects to put up a 10-story plant. T. J. Johnson of Pittsburgh and C. W. Gould of Butte have led in the negotiations.

Dr. N. G. Blalock, president of the Walla Walla & Columbia Traction Company, announced at Walla Walla March 18 that capital to the extent of $5,000,000 was available for the construction of an electric line from Dayton through Walla Walla to Wallula and Pasco, in eastern Washington. It was afterward stated that the contract for the entire line had been let to McLeod & Dusseurt contractors for the North Bank and the North Coast roads.

M. J. Heney, contractor for the Copper River road, under construction by the Guggenheim interests in Alaska, is on his way returning to Seattle from the north to superintend the forwarding of many tons of materials ready for shipment. The steamship Seward recently sailed for Cordova with 10 carloads of bridge steel and the knock down parts of two huge caissons, 70 ft. long and 21 ft. high, to be set up and sunk in the Copper River to form the cases for the concrete foundation for the second bridge of the railroad at Miles Glacier, 55 miles from Cordova.

The announcement was received here a short time ago that Naval Constructor T. F. Ruhm had been detached from duty in the bureau at Washington, D. C., and ordered to Seattle to superintend the construction of the two submarine boats which will be built by the Moran Company for the Government.

New equipment for the Seattle Electric Company, in preparation for handling the Alaska-Yukon-Pacific Exposition crowds this summer, is arriving at the rate of 20 cars a day.

Recent large shipments from this port to the Philippines of Government supplies in foreign steamships have led to a revival of the effort to increase the Government transport service from Seattle.

The visit to the Pacific Northwest of President F. K. Copeland of the National Metal Trades Association was signalized by dinners in his honor at the Portland Commercial Club March 13, at the Washington Hotel, Seattle, March 15, and at Spokane March 17. The members of several other organizations joined with the metal trades men in the Seattle reception to Mr. Copeland. The Arrangements Committee included J. M. Frink, Washington Iron Works; J. V. Patterson, Moran Company, and George James, Variety Iron Works, all of Seattle, and John Hartman, Atlas Foundry Company, Tacoma, and J. M. Fitzpatrick, Union Iron Works, Spokane.

April 24, at Everett, has been fixed by the Executive Council for the annual meeting of the United Metal Trades Association, when officers for the coming year will be elected.

Dealers are still holding the price on machinery scrap iron to $18 and $20 per ton. Pig iron is being bought for $22. W. T. P.

The Australian Iron and Steel Bounty.—The bounty of $3 a ton on pig iron, puddled iron and steel made from native material as offered by the Australian Government, was recently claimed by Hoskings & Co., now the owners of the iron and steel works at Lithgow, New South Wales, originally built by William Sandford. Government officials, in replying, told the firm that it must show that the steel on which it claimed the bounty was made entirely from Australian pig iron and scrap, the pig iron in turn to be made from Australian ore. The firm has protested that it was not the intention of the Australian Parliament to limit steel manufacturers to the use of native scrap, and that it is practically impossible to make steel entirely from material found in Australia. If such construction is put on the act, the firm says, the offer of a bounty on iron and steel manufacture is illusive.

The Gary Open Hearth Gas Producer Plant.—An annoying error was made in last week's issue in the description of the gas producer plant connected with the open hearth furnaces of the Indiana Steel Company at Gary, Ind. The statement is made that "fuel is supplied to the open hearth furnaces by a Morgan continuous gas producer plant, having one 10-ft. producer for each furnace." The Wellman-Seaver-Morgan Company, Cleveland, Ohio, calls attention to the fact that this statement will be recognized by all steel men as an impossibility. As a matter of fact, there are five of these producers supplying gas to each furnace.

Dunbar Furnace Output.—No. 2 furnace of the Dunbar Furnace Company, Dunbar, Pa., made 1947 gross tons of iron last week, the best record for one day being 320 tons. This stack made 22,142 tons in the first three months of this year, and is now averaging about 275 tons per day. It runs on foundry, forge, basic, car wheel and malleable grades, and so far this year has not made a pound of off iron. The average coke consumption is 2210 lb. per ton of iron. Semet-Solvay by-product coke, made in the company's 110 ovens at Dunbar, is used exclusively. The average sulphur content of the pig iron is about 0.037 per cent.

The Moore & Scott Iron Works, San Francisco, Cal., has purchased the Boole & Sons shipyard, at Oakland, for a sum said to be nearly $500,000. It is the intention of the new owners to spend about $200,000 in enlarging the capacity of the yards. One of the improvements will be the construction of a new dock of about 5000 tons capacity. The plant at present has a dockage capacity of 3000 tons, and is well equipped for general ship repairs and building. To carry out its plans the new owners will install heavier tools, and will enlarge several departments, the intention being to place the yard in a position to handle work of any magnitude.

W. G. Brangham, who resigned recently as superintendent of the Chester, W. Va., tin plate mill of the American Sheet & Tin Plate Company, is reported to be organizing a company representing chiefly Wheeling, W. Va., and Steubenville, Ohio, capital, for the building of an eight-mill tin plate plant at Hollidays Cove, Hancock County, W. Va. The place selected is on the Pan Handle division of the Pennsylvania Railroad, on the Ohio River nearly opposite Steubenville.

Trade Publications.

Brazing and Soldering Compounds.—Universal Fluxine Company, Urbana, Ohio. Booklet and circular. The booklet is devoted to Fluxine, a brazing compound which is especially adaptable among other things for brazing a high speed steel cutter into a soft body or welding brass, bronze, copper and high speed steel. Directions are given for using it, and gas blow pipes and double jet gasoline brazers and brazing forges are shown. The circular treats of the universal soldering fluid, which comes in liquid form and is recommended for electrical workers, automobile repairs, &c.

Pneumatic Water Supply Systems and Hydraulic Rams.—Kewanee Water Supply Company, Kewanee, Ill. Catalogue, 8 x 10 in., 65 pages. An attractively illustrated book containing an introduction explaining the Kewanee system of pneumatic water supply. An excellent argument in favor of this system is contained in the view of an attractive landscape which is marred by an unsightly elevated water tank. Stand pipes and windmill tanks covered with ice and for the time being useless are also shown to illustrate the disadvantages of elevated water supply. There follows a number of residences and grounds where the pneumatic underground system is employed, and several series of views illustrate groups of houses which are supplied by large systems. The advantages of the Kewanee system for farmers is explained by the aid of interesting views, and public institutions and office buildings are also shown. The book contains many testimonials, and some space is given to pumps and engines, Kewanee tanks operated with hot air engines, gasoline engines, &c. It is explained on one of the last pages that a Kewanee pneumatic tank is generally installed in the cellar, but it can be buried in the ground with satisfactory results. In many cases it is convenient to place the tank with the pumping machinery in a special pump house provided for their protection. The system can be arranged to meet any requirements from that of a small residence to that of a town water supply. A list of places in which the system has been installed occupies five pages.

Horizontal Gas Engines.—Foos Gas Engine Company, Springfield, Ohio. Catalogue, 7½ x 9 in., 56 pages. Describes horizontal single cylinder engines in a number of combinations which are furnished to operate upon gas, gasoline, naphtha, alcohol and other liquid fuels. A general description of the standard engines, which are furnished in 20 sizes from 2 to 90 hp., is given, and there follow views of hoisting engines, portable engines, a Foos engine with silent chain drive to an air compressor making an efficient self-contained semiportable plant. Engines are shown attached to vacuum cleaners and wood sawing machines. A suction gas producer is illustrated and the various parts of the standard engines are shown and described.

Machinists', Railroad and Mill Supplies.—Joseph H. Whitehead Company, 30 South Canal street, Chicago, Ill. Catalogue, 4½ x 7 in., 376 pages. An especially complete catalogue of supplies, devoted chiefly to small supplies, such as chucks, drills, pliers, cutters, die stocks, bits, bolts and nuts, oilers, oil covers, &c. Some machinery is included, such as portable punches and shears, bench emery grinders, floor grinders, small power presses, foot presses, drill presses, universal drills, screw cutting lathes, portable keyseaters, portable forges, &c. A line of contractors' tools, such as shovels, wheelbarrows, &c., is also shown. The volume is thoroughly indexed and most of the supplies are tabulated in sizes.

Steam Hammers.—Niles-Bement-Pond Company, New York. Catalogue, 9 x 12 in., 52 pages. An attractive catalogue of the company's line of hammers. The more important ones are shown and graphically described. The illustrations include some particularly heavy equipment, such as a special 8000-lb. double frame steam hammer for axle forging, a 1500-lb. double frame steam hammer for welding pipe flanges, a 24,000-lb. double frame steam hammer and smaller sizes of the latter type. A number of large drop hammers, including a type of steam drop hammer which is made up to 4000 lb., designed to meet the requirements of plants where steam or compressed air is not available, are shown.

Induction Reversing Drive Clutches.—Wheeling Mold & Foundry Company, Wheeling, W. Va. Bulletin No. 102. Illustrates the application of a 25-hp. indication clutch reversing drive to a 48-in. heavy planer, and describes at some length the peculiar adaptability of this type of drive to the service referred to. A description of the induction clutch was given in *The Iron Age* June 11, 1908. These clutches are built in any size up to 75 hp., and as applied to planers will give six variable cutting speeds without change gears and a constant return speed. Advantages inhibitive to this drive are that there are never any driving parts in contact with driven parts, that it is noiseless, and easily attached to any planer. Two types are made, one in which the drive and motor are self-contained, and the other in which they are independent.

Grinders and Special Machinery.—Colborne Mfg. Company, 31 East Indiana street, Chicago, Ill. Circulars. Each is illustrated and contains a short description. Three circulars deal respectively with a surface grinder, a grinder for edging and joining, and a vertical grinder for facing. One circular shows a sheet steel slitting machine. Three deal with special machinery for bakeries, including a large automatic machine for baking pies, and a small one for the same purpose, and a set of crust rolls. Another circular shows the Colborne patented improved brick transfer trucks.

Machine Tools.—Hill, Clarke & Co., Chicago. Four leaflets, 8½ x 11 in. Contain illustrations and details of dimensions of some of the leading tools handled by this company. Attention is called to the continuous automatic bar feed attachment that has recently been added to the tilted turret lathe, three sizes of which are included in the details given. The other tools shown are a 36-in. solid saddle miller, a No. 2½ universal horizontal boring machine with rapid milling feeds, and the Chicago duplex hand miller with power feed.

Marine Engines.—Anderson Engine Company, Shelbyville, Ill. Catalogue, 16 pages. Illustrates and describes the Anderson marine engines, made with single, double, triple and quadruple cylinders, four-cycle type, and fitted with all modern accessories. Sectional drawings furnish details of the construction. The company occupies a newly erected factory equipped with machinery designed for its special work.

Foot Presses.—The Manville Brothers Company, 27 Benedict street, Waterbury, Conn. Booklet. Foot presses designed for special purposes, such as covering cloth buttons, cutler's presses for blanking purposes and for securing eyelets to goods, &c., are shown, together with a small power bench press. An announcement that the company has purchased from the Cross & Spiers Machine Company of Waterbury its entire line of machinery for manufacturing special presses, lathes, &c., accompanies the book.

Pressure Pumps.—Dean Bros. Steam Pump Works, Indianapolis, Ind. Catalogue No. 72, 31 pages. A duplex hydraulic pressure pump which is electrically driven is shown as a frontispiece, and there follows a general description of the company's hydraulic pressure power driven pumps, which are made in all of the known types. Sizes are tabulated and parts are listed to facilitate ordering repairs.

Chain Grates.—Laclede-Christy Clay Products Company, Manchester and Sulphur avenues, St. Louis, Mo. Circular. Shows a chain grate with an adjustable roller and dumping attachment, illustrating installations, briefly describing the grate and listing its advantages.

Electrical Equipment.—General Electric Company, Schenectady, N. Y. Two bulletins, two folders and pamphlet. Bulletin No. 4654 deals with section switches, and No. 4655 with electric hardening furnaces (described in *The Iron Age*, December 3, 1908). Circular No. 3761 concerns extension diffusers, for use in incandescent electric lighting, and No. 3765, small transformers, for ringing electric bells from electric lighting alternating current circuits, in place of batteries. Booklet No. 3757 explains the advantages of Tungsten lamps for illuminating railroad cars.

Domestic Water Supply Systems.—Humphryes Mfg. Company, Mansfield, Ohio. Catalogue, 6 x 9 in., 24 pages. Pneumatic water works systems especially adaptable for homes and buildings generally that are without public water supply are described. Diagrams show a complete hot and cold water system for suburban homes. Pumping jacks, small air compressors, triplex pumps, deep well pumps and hydraulic rams are illustrated and directions for installing given.

Suction Conveyors.—Darley Engineering Company, Farmers' Bank Building, Pittsburgh, Pa. Bulletin No. 2. Suction conveyors for handling ashes are described and some installations are shown. The equipment consists of a conveyor pipe, separator and an exhauster with its connections. The separator is practically an expansion chamber and is placed in the end of the conveyor room. It acts as a storage tank for the conveyed material and holds it until it can be drawn by gravity through a discharge gate. A water jet in this separator entrains the dust and cools the ashes. The exhauster may be of positive rotary type or any other of the standard forms, and driven by motor, turbine or belt.

Mechanical Lubricating Devices.—J. L. Osgood Lubricator Company, 131 Erie County Bank Building, Buffalo, N. Y. Circular. Shows a valveless sight-feed lubricator which will pump any fluid that will run against upward of 2000 lb. pressure. The feed is regulated by the pump plungers, which takes from the tank only the amount required and forces it directly through an open pipe without any needle or regulating valve.

Wire Rope Fixtures.—C. M. Mockbee, Cincinnati, Ohio. Circular. Lists turnbuckles of various kinds, and clips, sockets and thimbles for wire rope.

Gas Engines.—The Field-Brundage Company, Jackson, Mich. Catalogue, 6¾ x 9 in., 24 pages. Illustrates the Field gas, gasoline and distillate engines, which are made in standard sizes up to 30 hp. They are equipped with automatic starters, and the cylinder and combustion chamber is made in one casting. Exhaust and inlet valves are mechanically operated and are located in removable cages. The exhaust cam is provided with two paths; one path reducing the compression so that the engine may be easily turned over by hand for starting on gas where the use of gasoline is prohibited. Engines of 10 hp. and larger are equipped with water circulating pumps and split hubs on the flywheel.

The Machinery Trade.

NEW YORK, April 7, 1909.

The demand for machinery seems to be gradually increasing, and from the activity displayed by prospective purchasers and the less hesitancy in placing orders it is evident that the betterment which started a few weeks ago is founded on a basis that bids fair for a continued growth of trade. One of the features that is encouraging is the increase in building operations, many of which have lately been announced by industrial companies. While the railroads are doing little work in the way of new shop construction, some of them have announced that they intend to expend large sums of money for equipment which will indirectly benefit the machinery trade. It is reported that the Baltimore & Ohio Railroad will buy a large amount of equipment. The betterment in business was well maintained the past week, and though a marked increase was not noticeable, the size and number of tools covered by the inquiries were encouraging. Since our last report many inquiries have been received for $2000 to $3000 worth of machine tools, some of them of the heavier class, and those asking for quotations show a disposition to place orders shortly. It is believed that as soon as the railroads enter the market business will quickly become normal. Houses have now figured up their business for March and find that that month has been the best since the beginning of the year. While with many the betterment was only slight, some report a gain in sales of about 20 per cent. over February, which in turn was a more profitable month than the preceding one.

The date of the forthcoming convention of the National Machine Tool Builders' Association at Milwaukee, Wis., has been set for Tuesday and Wednesday, May 25 and 26. The association will make its headquarters at the Plankinton Hotel.

The practical settlement of the dispute between Austria and Servia will result in a substantial increase in business from those and other European countries before long, according to the conclusions of Charles A. Schieren, Jr., of the Charles A. Schieren Company, who returned last week from his annual trip to Europe which he makes to look over the business situation and visit the European agencies of his company. While Mr. Schieren was abroad the war scare was at its hight, and he found trade dull. In Vienna particularly, Mr. Schieren declares business was practically at a standstill and the fear was expressed that if there was an outbreak of hostilities other countries might become involved, and in consequence business in France, Russia and Germany was seriously affected. Previous to sailing from this country Mr. Schieren ascertained that business from abroad had not only fallen off in his own line, the leather belting and belt dressing industries, but also in the general machinery trade with which the leather belting business is closely allied. So he determined to make an especially careful canvass of the situation, with a view to finding out what might be expected in the way of export business in the future. He found not only that the war talk was affecting trade, but the unsettled conditions due to the tariff revision in this country, which is being discussed by prominent business people in Europe, and while there were no very serious threats of a boycott on American goods he found foreign customers were anxiously discussing the probable outcome of the tariff regulations here. On his return to this country Mr. Schieren learned of the settlement of the Austro-Servian dispute, and his knowledge of the situation enabled him to cable some pertinent inquiries to his foreign connections which resulted in his forming a more optimistic opinion of the future. Orders which have been held up have been coming in during the last few days, and Mr. Schieren said this week that the clearing up of the situation will result in an active increase in business. He found that in Italy and France the automobile industry was being carried on as vigorously as ever, but other trades were decidedly duller and a healthy influx of orders from the latter industries throughout Europe can now be looked for, according to his opinion. The unsettled tariff conditions may have some restraint, but notwithstanding that fact Mr. Schieren is looking for some good business from Europe before long.

Machinery houses are now submitting bids on the additional list of equipment to be purchased by the Maxwell-Briscoe Motor Company for the plant at Tarrytown, N. Y., which it recently purchased from the Ingersoll-Rand Company. The company has recently purchased considerable new machinery, and it is understood that the aggregate of purchases made when the list now before the trade is closed will be about $80,000. While additional machinery has recently been purchased for its New Castle, Ind., plant, the company has before the trade inquiries covering a number of tools which it intends to buy for that plant.

The Cambria Steel Company, Philadelphia, Pa., has been doing quite a little ordering of late in the way of general machinery and supplies. This business, it is understood, is not being placed with a view to any large extension of the company's works, but it is principally an addition of general equipment to its manufacturing plant, and a number of good orders have been recorded by firms in the New York District the last two weeks.

Equipment will shortly be purchased by the Empire Foundry Company, New Brunswick, N. J., to replace that lost in the recent fire which destroyed six of the buildings, some of frame and others of brick construction. The foundry department, covering 30,000 sq. ft. of floor space, and the core rooms, including the cupola remain intact, the buildings destroyed being used for manufacturing, nickel, wood and metal pattern and machining departments, together with the mill room and power plant. The structures will be rebuilt as rapidly as possible, in order that the entire plant may resume operations at an early date and modern machinery will be installed, such as exhaust tumbling barrels of improved type, and the entire plant will be operated by electricity. Not all of the required equipment has been purchased. The company has purchased exhaust tumbling barrels from the W. W. Sly Mfg. Company, Cleveland, Ohio, and is now considering the purchase of electric motors to be installed throughout the plant, aggregating about 80 hp.

The Delaware, Lackawanna & Western Railroad has sent out from its purchasing department in New York inquiries for six Corliss engines, of which four, one a 110-hp. engine and three 170-hp. engines, will go to the company's collieries in Scranton, Pa., while two will go to the collieries at Avondale. Of the latter, one is to be a 100-hp. engine and one a 150-hp. engine. It is understood that the company is also getting boilers and other power equipment to match.

The New York, Ontario & Western Railroad, New York, will soon start construction on a car repair shop at Oswego, N. Y. The new building will be of brick and steel construction, one story, 48 x 155 ft. The new round house on which construction was started some time ago is now just about completed.

Byrne & Du Bois, 12 Plain street, Albany, N. Y., will open a general machine and repair shop at 120 Hudson avenue, on or about May 15. A new brick building, two stories, 35 x 96 ft., is now under construction. The machinery and tools at the present shop will be moved to the new address, and the firm is now ready to receive bids on the following new tools which they contemplate purchasing: One 24-in. shaper, one No. 2 milling machine and one 16-in. lathe.

Consulting engineers, Ziele, Blackwell & Buck, New York, have secured the contract for an electric power plant; also a pneumatic plant to supply power to operate mining machinery in connection with the silver mines at Cobalt, Ontario, Canada.

Several shops in which were installed considerable machinery were destroyed in the fire at Fort Worth, Texas, April 4, which burned property valued at $2,000,000. The round house, repair shops, coal chutes and yards of the Texas & Pacific Railroad were burned, with a loss of about $150,000, and the plant of the Sawyer Electrical Company was also burned.

The International Smelting & Refining Company, recently organized with $50,000,000 capital stock, has taken over the refining business of the United Metal Company conducted by the Raritan Copper Works at Perth Amboy, N. J. It is understood that the new company is preparing to build a large smelter in Utah and will extend its enterprise further later on so that it is probable that some good buying will result from the formation of the corporation. John B. Ryan, who has been at the head of the Anaconda Copper Mining Company, has been made president of the company, and the other officers are Dennis Sheedy, vice-president; J. W. Allen, secretary and treasurer. The directorate includes Urban H. Broughton, Charles F. Brooker of the American Brass Company, John F. Cole, who has been associated with Mr. Ryan; Adolph Lewishon, Thomas Morrison of Pittsburgh, and Charles H. Sabin, president of the National Copper Bank. The company has offices at present at 42 Broadway, where the offices of the Anaconda Mining Company are also located.

The Board of Water Supply, New York, has awarded to the Bradley Contracting Company, New York, the contract for the construction of the Turkey Mountain gate tunnel at Croton Lake, crusher tunnel and a blower tunnel discharging into Croton Lake at Yorktown, Westchester County, for $975,695. King, Rice & Ganey secured the contract for constructing 2½ miles of plain concrete aqueduct between West Hurley and a point two miles east of Wallkill, Ulster County, at $610,407. These contracts cover work in constructing the Catskill aqueduct.

The Public Service Commission has approved of the plans to extend the subway of the Hudson & Manhattan Railroad from Thirty-third street and Broadway to the Grand Central Station, and it is likely that the construction of the extension of the McAdoo tunnel will be started at an early date. The tunnel will run from Thirty-third street and Broadway up to Sixth avenue into Forty-second street to the Grand Central Station, coming into the station below the present subway. The tunnel station will extend from Park avenue to Lexington and will afford connections with

the present subway, the Steinway tunnel and the Grand Central Station. Stations will be established at Forty-second street and Fifth avenue and at Thirty-ninth street and Sixth avenue.

The Parket Boiler Company, 90 West street, New York, has received a repeat order for a 300-hp. unit for the Astoria Veneer Mills at Astoria, L. I. The Spooner-Matthewson Company, 90 West street, New York, has been awarded a contract by the same company for a self-supporting steel chimney, and will install a similar chimney at the York Haven Paper Company at York Haven, Pa.

Business Changes.

The United States Indestructible Gasket Company has moved its offices from 16 South William street to suite 1364, 50 Church street, New York.

The Robins New Conveyor Company has leased the entire building at 72 Front street, New York, and April 1 removed its offices from 38 Wall street to the new location. The machinery and other effects of the Duane street factory are now being removed into the new quarters as rapidly as possible. The constant and material increase in the company's business is responsible for the change of location and the combining of offices and factory. Greatly increased facilities are provided by the new location, particularly for the manufacture of Robins' laminated leather belting and Robins' genuine balata belting.

The Helwig Mfg. Company, St. Paul, Minn., manufacturer of portable pneumatic tools, has opened a European office at 19 Rue Delambre, Paris, France, which is in charge of A. L. Helwig.

Philadelphia Machinery Market.

PHILADELPHIA, PA., April 6, 1909.

Reports from manufacturers of machine tools as well as merchants show that the month of March was a shade better in the volume of business as compared with that of the previous month. The same irregularity in the demand was noted, the dullest period being early in the month. The smaller plants usually showed the greatest gains, particularly those making special equipment. Some improvement was reported by the larger tool makers, although it will require a much greater volume of business to make any material showing.

A better feeling prevails regarding prospective business. While conditions are still unsettled, owing to wage readjustments, tariff discussion and prices of crude materials, it is believed that the unfavorable influence exerted recently by these factors will gradually decrease. In fact, inquiries while not showing a very heavy increase, are more favorable, inasmuch as they appear to lead up to actual transactions more readily than they have for some months. They are still closely confined to small propositions, mainly requirements of a more urgent nature, buyers having put off the actual purchase of needed equipment as long as they could. Several propositions of more pretentious size in wood working and general equipment are in sight and will, it is believed, develop into firm inquiries in the very near future. Sales during the week have usually been single tools, milling machines still being in the best general demand. Several good orders for electric cranes have recently been placed.

The foreign demand still drags and nothing important has developed in the way of export trade.

The second-hand machinery market continues more or less irregular. Business continues of a day to day character, with sales confined to small and medium class equipment. Second-hand boilers and engines continue fairly active, while there is a slight improvement to be noted in the inquiries for new equipment of this class. Several large power installations on which bids have been in for some time are still unclosed, but are expected to be placed in the near future.

No important developments have come out in the foundry trade. Some slight betterment is reported by the jobbing foundries, but the demand for machinery castings still continues light, except for those entering into the construction of textile machinery, which are fairly active. Steel casting plants report little change in general conditions.

Revised bids which were opened by Director Stearns of the Department of Public Works for the new Queens Lane filtration plant show a material reduction in cost and time of completion. All of the former concerns made new bids, which ranged from $1,832,570 to $2,067,970, the length of time required to complete the work being from 9 to 19 months. The original proposals as previously reported ranged from $1,983,700 to $2,268,200, the time for the completion of the work being 20 to 30 months. The contract has not yet been awarded, the formal appropriation by City Councils not having as yet been made. The Millard Construction Company was the lowest bidder, agreeing to complete the work in 14 months.

The Tindel Morris Company, Eddystone, Pa., reports a substantial increase for forgings, particularly for automobile work, and is now operating its plant in that department on full time. The demand for cold saw cutting off machines and special crude shaft finishing machines develops more slowly, but the outlook for business in this direction is more encouraging.

Roydhouse, Arey & Co., contractors, have begun work on a large additional manufacturing building for the Philadelphia Leather Works, Bridesburg, Philadelphia. The structure will be brick, 60 x 140 ft., three stories. The plant is located at the foot of Newkirk street, on the Delaware River.

A. E. Burnaford, president of the School Board, Wilkes-Barre, Pa., will receive bids until April 26 for boilers, stacks, power plant equipment, ventilating and heating system and electric work for installation in a new high school building in that city.

Elaborate plans for a new pier at Dock street wharf are being prepared by the City Department of Wharves, Docks and Ferries. The pier is to be of concrete, resting on pillars, and will embrace the latest improvements in dock construction. The superstructure will be of structural steel, with three decks, the main deck having railroad facilities for cargo work. The second deck will accommodate the offices of the department, while the third deck will be used for storage purposes, particularly fruit, for which there will be 20 compartments, in which a constant temperature will be maintained. Extensive arrangements for the accommodation of passenger service will also be provided.

The Southwark Foundry & Machine Company notes an improvement in the demand for engines of the larger horsepower as well as for condensers, and is now operating its plant at about 60 per cent. of its capacity. Considerable new work has developed, and the outlook for the future is believed to be materially better.

Ballinger & Perrot, engineers, have awarded the contract for the four-story woodworking plant to be erected for the Victor Talking Machine Company, Camden, N. J., to Roydhouse, Arey & Co. of this city. The same engineers have sent out plans for estimates for a new office and shop building for the Warren-Webster Company, Camden, N. J.

The Hydro-Electric Company is taking estimates for its new power plant, to be located on the Schuylkill River, below Flat Rock dam.

The Department of Health and Charities, City of Philadelphia, will receive bids until April 10 for a laundry machine outfit, to be installed at Byberry, Philadelphia. Specifications and blank proposals may be obtained at the office of the director, 584 City Hall.

The Morris Engineering Company, Philadelphia, Pa., has awarded contract to the Philadelphia Fireproofing Company to build an addition to its machine shop, 60 x 72 ft., on Thirty-seventh street. The extension will add about 50 per cent. to the floor area and will consist of a central bay and two side bays. It will be used as an erecting shop and for the 16-ft. boring mill and other large tools. The company expects to have it completed in about four weeks. No additional machinery is required at the present time.

Cleveland Machinery Market.

CLEVELAND, OHIO, April 6, 1909.

The aggregate volume of machine tool sales by local dealers during March showed little change as compared with the previous month. Some dealers report a slight improvement during the past month, but with others business fell off slightly. No change of importance developed in the condition of the market during the past week. No lists of any size have come out and sales have been confined almost altogether to single tools, orders being mostly of a pick-up nature and dealers having little in sight in the way of business. Orders are mostly for high grade tools in medium sizes. The demand for second-hand tools is less active than a few weeks ago. The demand for milling machines seems to be better than for any other kind of machine tools. The market shows more activity in the demand for power equipment, there being an improvement in orders and inquiries for engines, generators and motors.

Conditions have not changed materially with builders of machine tools, although there is an improvement in the demand for automatic machines and some other lines. Makers of punches, shears and heavy forging machinery, and builders of other machinery not used extensively in the automobile industry, are unable to see much improvement in conditions. This is attributed largely to the fact that practically no business is coming from the railroads as yet. With builders of heavy handling and special machinery orders have improved considerably and the outlook is regarded as greatly improved. There is a better demand for locomotive cranes, orders coming mostly from industrial concerns. Little new business is developing in shop cranes, but manufacturers of this class of machinery have considerable work on hand. Boiler making plants in this territory are busier than they have been for some time.

The Brown Hoisting Machinery Company, Cleveland, reports considerable improvement in orders and a much brighter outlook than earlier in the year. The company recently

secured a contract for considerable work in connection with the improvements to be carried out by the Stewart Iron Company at its blast furnace at Sharon, Pa. The order includes bins and trestle for bins, furnace hoist, larries and a locomotive crane. Among other orders just received is one from the Shenango Furnace Company for a bridge at its Sharpsville, Pa., plant. The demand for locomotive cranes has improved, as well as that for heavy machinery. During one week the company received orders for six locomotive cranes, two for shipment to Mexico and the remainder single orders for industrial plants in the United States.

The General Heater Company, Cleveland, has been incorporated, with a capitalization of $125,000, to manufacture a water tube heater for steam and hot water heating. It is the intention to establish a plant where all the manufacturing work will be done, with the exception of the foundry work. The company expects to buy a number of machine tools and other equipment. The incorporators are E. A. Halbleid, J. C. Halbleid, C. A. Niman, H. O. Yoder and E. G. Hogg. Offices have been opened at 1114 Schofield Building.

The Joseph Dick Mfg. Company, Canton, Ohio, has been formed, with a capitalization of $30,000, to take over the business of the Joseph Dick Agricultural Works, which in the past has been operated by Joseph Dick as sole owner. The incorporators of the new company are Joseph Dick, Julius Whiting, Jr., Walter R. Schwertner, Fred Zettler and Sidney Hamaker.

The Cleveland office of the Allis-Chalmers Company has closed a contract with the Cleveland Worsted Mills Company for a 1500-kw. generating unit for an addition to its power equipment.

The Lake Erie Portland Cement Company, which has just completed buildings for a large plant in Sandusky, Ohio, will be in the market soon for additional cement making machinery. The company expects to have a plant with a daily capacity of 3000 bbl.

The Board of Public Service of Barberton, Ohio, has awarded the contract for an air compressor for the municipal water works plant to the Ingersoll-Rand Company, New York.

The Twin City Lighting Company has been organized at Sugar Creek, Ohio, to establish a lighting plant. S. J. Gerber and others are interested.

The New York & Ohio Company has commenced the erection of a new Tungsten lamp factory at Warren, Ohio. The building will be 60 x 200 ft., three stories high, and of brick construction.

The Ferro Machine & Foundry Company, Cleveland, will erect a new machine shop, 100 x 165 ft. The company has outgrown the capacity of its present machine shop, and also desires additional room to provide a department for doing machine work on automobile castings. A machine tool list has not yet been prepared, but the company expects to be in the market soon for a number of tools.

Cincinnati Machinery Market.

CINCINNATI, OHIO, April 6, 1909.

The month opened encouragingly for the most part, with machine tool builders in this market, dealers in several sections making some deferred purchases. Makers of standard types of tools report a good outlook, and some, such as the builders of lathes, small portable electric tools and heavy milling types have their shop forces taxed to capacity on current orders. The foreign outlook is better, some inquiries having come in during the week from abroad, and one company making a specialty of shapers signalized the closing days of March by shipping a carload to European marts.

Some railroad deals which were expected to have been closed by April 1 are still held up. Among these is the Carolina, Clinchfield & Ohio Railroad.

The convention of the allied foundrymen, the American Foundrymen's Association, Foundry and Manufacturers' Supply Association, Foundry Foremen's Association and the Brass Founders' Association, which will be held in Cincinnati May 17-22, is expected to be well attended by machine tool builders, since it has been determined to invite them to participate and exhibit. Secretary C. E. Hoyt of the Foundry and Manufacturers' Supply Association is making up a list of the tool builders in this section who will have space for working exhibits, which has been provided in the exhibition department of the Music Hall Buildings. It is announced that the United States Steel Corporation has determined to send to the Cincinnati convention all its superintendents and heads of mechanical departments.

The jobbing foundries in this district continue to show little improvement in the melt. All have good stocks of iron on hand, which, for the most part, was purchased during the late fall slump. Those making machine tool castings a specialty are running the lightest, while foundries connected with the ice and refrigerator machinery trade and doing a general business in small miscellaneous castings are running almost full.

The stockholders of the Eagle Tool Company, in Northside, met last week and elected directors and increased the capital stock from $50,000 to $100,000; also decided to change the name to the Eagle Mfg. Company. The company has been making a line of tool specialties and water motors. In order to increase the capacity it was decided to put up an additional building, 75 x 100 ft., at the present location in Northside and add some tools and machinery, such as stamping and forming presses and lathes. The directors are R. B. Goodrich, president; Roger Morrison, Henry Vogel, George W. Platt and Mrs. C. T. Goodrich.

Bankruptcy Referee Whittaker has declared a dividend of 2 per cent. in the Brackett Bridge Company case, which has been in the federal courts at Cincinnati for three years. The amount, $1500, represents the first and only dividend and will be disbursed among creditors whose claims aggregate about $65,000. The old plant of the company is now the site of the Phillemac Rolling Mill Company, which but recently decided to increase its capital stock and add new boilers and other machinery.

The William Lang & Son Company, manufacturer of architectural iron, has taken 75 ft. on the east side of Patterson street, Cincinnati, and will remodel a building thereon for its needs.

John G. Patten of Wabash, Ind., has disposed of his Wabash foundry and machine shop for a 3500-acre plantation in Holmes County, Miss. The consideration upon which the deal was based is said to have been on the basis of $51,000 for the foundry, including machinery and stock. The foundry, which is more familiarly known as the Lawton Foundry, will be operated by the Marion, Ind., syndicate which owned the land concerned in the transaction. William M. Amsden, an attorney, is president of the foundry company.

General Manager J. H. Stewart of the Ohio File Works, Niles, Ohio, has announced that the company will enlarge its shops and will install additional equipment.

Chicago Machinery Market.

CHICAGO, ILL., April 6, 1909.

Measured strictly by the present volume of current sales, there is on the whole but little if any improvement noted in any of the various machinery lines. At the same time there are signs of development in some branches of the trade, which reasonably interpreted would seem to indicate a gradual trend toward a better demand. A significant fact in this connection is the largely increased movement of maintenance orders being received from machinery users. This does not, of course, mean that the volume of business is growing in like proportion, for these orders are on the average much smaller than usual. A member of the sales department of one of the leading electrical equipment concerns referring to this phase of the situation states that orders are now as great or greater in number than ever they were, and yet they represent an aggregate much below normal. This is a direct result of the hand to mouth policy of buying that is being pursued not only in machinery and machinery supply lines, but elsewhere with equal consistency. Another fact that augurs well for the future, and is really one of the most encouraging indications pointing to positive upturn from the present unsatisfactory state of activity, is the increasing number of inquiries coming in for electrical equipment. It is true that a large percentage of these relate to installations of unimportant size; but should they soon develop into orders, the aggregate would be large enough to give unmistakable impetus to the lagging demand. There are, however, several good sized contracts for electrical machinery coming up within the next 30 days at various points throughout the West, especially in Montana. Most of these are of considerable size and represent the needs of substantial and well developed projects. The machine tool houses uniformly report a very quiet week, with nothing more exciting in the way of new business than a few single tool orders, mostly for small machines. There is also a growing amount of inquiries in this division of the market, but it gives promise of no immediate forward impulse.

Plans have been prepared and work will be begun at an early date by the Moline Plow Company on a new foundry building, 80 x 208 ft., for the Mandt Wagon Company at Stoughton, Wis., one of the Moline Plow Company's subsidiary plants. An addition to one of the present buildings for providing room in the gear department is also contemplated. These improvements are designed to supply parts that heretofore have been purchased outside.

The Sterling Pattern Works, Sterling, Ill., owned by E. J. Cochran and Ward Lincoln, has purchased the plant and business of the Harrison Mfg. Company into which the machinery and equipment of the present plant has been moved. The Sterling Pattern Works will continue to build gasoline engines, cement specialties and wood and steel patterns, together with the line formerly made by the Harrison Mfg.

Company, consisting of office fixtures, show cases, &c. An addition to the present plant is contemplated.

An interesting industrial project is embraced in the plans of the Liquid Carbonic Company, Chicago, which contemplates the erection of a new plant on a site consisting of 38 acres at Thirty-first street and Hoyne avenue, which has been purchased for this purpose. The company, which manufactures soda water apparatus and bottling machinery, now occupies two separate establishments, one located at Michigan and Wells streets and the other at a point several blocks distant. The purpose in building the new factory is to bring together and consolidate these separate branches into a united works. While definite plans have not yet been drawn, it is understood that they will include both iron and brass foundry departments and machine shop of considerable size. It is not expected that actual work of construction will be begun at once, but it is likely to be well under way before the close of the year.

F. W. Stock & Sons, Hillsdale, Mich., are making arrangements to remodel and re-equip their extensive flour mills with an entirely new mechanical system which is designed to increase the capacity 1000 barrels or more. The plans also include the installation of a larger engine and condenser to take the place of an 18 x 34 x 48 in. Reynolds Corliss compound condensing engine now in use.

The St. Helens Mill Company, St. Helens, Ore., is figuring on the installation of an electric light plant in its new mill, with capacity enough to furnish light to the town if necessary.

Milwaukee Machinery Market.

MILWAUKEE, WIS., April 6, 1909.

Conditions here at present are rather more quiet than they have been since the first of the year, so far as orders for machinery are concerned. At the same time building operations are being pushed, and there can be no question but that within a brief period these will force the placing of a large number of orders for equipment. Wisconsin is a State which it will pay manufacturers and dealers in machinery to watch very closely; for the aggregate of business to be obtained here this spring is certain to develop unusual proportions. The ordinary summer dullness will probably not prevail, as projects already started can hardly fail to force continued activity along many lines, and plans thus far announced for additions and extensions to industrial plants to be built during the fall give assurance of a busy windup to the year.

The American Oxyhydric Company, a new corporation composed of members of the Falk Company and Pawling & Harnischfeger, both of Milwaukee, will put up a plant here on the Falk property. The apparatus to be manufactured is for use in cutting steel girders, columns, beams, &c., by a process recently brought out in Belgium, the American rights for which this company has acquired. It resembles somewhat the oxyacetylene process employed in welding, which can also be used for cutting steel, and the equipment includes portable tanks containing gases under pressure. Herman Falk investigated the working of the system during his recent European tour. No contracts for the machinery needed are thus far reported to have been let, although large holders for the storage of gases have been ordered from the Western Gas Construction Company, Fort Wayne, Ind.

It is stated here that the Marquette Motor Company, Saginaw, Mich., will erect a new building and install additional equipment. In the same city, Chief Engineer Sharping of the East Side Water Works has recommended to the Water Board extensive repairs to the station, including new engines and boilers.

The Kent Mfg. Company, Ft. Atkinson, Wis., is taking bids on an addition to its plant; work upon the building and its equipment will be started soon.

The Hartford Canning Company, Hartford, Wis., will double its plant and install new machinery, making all processes purely mechanical. Electric drives are to be used for most purposes.

The Rice Machine Works, Stevens Point, Wis., reports a good run of business, which will probably result in an enlargement of the plant a little later on.

The American Can Company will erect an extension to its La Crosse plant. From Montreal it is reported that the motor equipment of the works there will be extended.

The La Crosse Water Power Company, which has already spent $1,500,000 improving its hydroelectric development on the Black River, is about to put 500 men to work at once reconstructing the Dells' dam near Neillsville, with a view to increasing the power available. It has leased to the local electric lighting and power company the entire output of its new hydroelectric plant at the Hatfield dam. Additional generating units are to be installed next year.

The Gibson Mfg. Company, Port Washington, Wis., plans a 200-ft. addition to its plant, giving direct access to the Chicago & Northwestern Railroad. A new testing room will also be built.

The Frank Geele Hardware Company, Sheboygan, Wis., will manufacture iron stanchions on an extensive scale, and a new factory is expected to be the outcome of present activity.

The American Steel & Wire Company, Cleveland, Ohio, has ordered from a local manufacturer a motor driven Christensen air compressor.

The Green Bay Foundry & Machine Company, Green Bay, Wis., is making improvements to its power transmitting system, including the purchase of Reliance leather belting. Additional equipment will be needed by or before the coming fall.

The Seattle Car Mfg. Company, Renton, Wash., will install a line of electric motors.

The Oak Park Power Company, Flint, Mich., plans to put in operation a new generating unit.

Jere Woodring & Co., Hazelton, Pa., will add a new electrical unit to their power equipment, and this is said to be the forerunner of important extensions to the plant.

The Heyl & Patterson Company, Pittsburgh, Pa., is buying electric motors for service with machinery recently sold.

The Thatcher Mfg. Company, Elmira, N. Y., will place a new generator in the power plant of its agricultural implement factory.

A motor generator set has been bought by the Pittsburgh Plate Glass Company for its plant at Crystal City, Mo., where a great deal of new equipment is to be installed this summer.

The Wisconsin Engine Company, Corliss, Wis., has taken a contract for two single and two cross compound engines to be coupled to Western Electric generators of 2400-kw. aggregate capacity in the Oliver power plant at Pittsburgh, Pa.

The Acker Electrical Company, Sheboygan, Wis., has been incorporated by John L. Acker, H. Thomas and Paul T. Kriz.

The Worden-Allen Company, Milwaukee, has the iron contract for a new boiler house for the Geo. Martin Leather Company of this city. Considerable apparatus is to be purchased later.

The Stott Briquetting Company is building a plant at Superior, Wis., and will contract shortly for some of the machinery.

The C. Killman Company, Green Bay, Wis., has competed a new planing mill, 70 x 90 ft., which is to be driven by electric motors.

The Interstate Power Company, Madison, Wis., is making contracts in the zinc and lead districts to furnish electric current for use in the mines. This will result in the purchase by operators in that section of a large number of motors and accessory apparatus during the coming year.

New England Machinery Market.

BOSTON, MASS., April 6, 1909.

The stagnation of the machine tool market continues with little change, the reports of dealers and manufacturers agreeing that small improvement has been noted in the demand. The dealers are getting some orders, but there is no indication of any very great revival of good business at present. The supply trade is about the same as it has been. Combustion engines for marine purposes are selling well, probably even better than a year ago, when business was not so unsatisfactory as in most lines, but there is said to be sharp competition which has its effect upon prices, no agreement existing in this branch of the trade.

The textile machinery builders report a flourishing business. Cotton, woolen and silk machinery are all in strong demand, silk perhaps taking the lead. Shop after shop has felt the improvement and has gone on full time with full working forces, in some cases running overtime. The industry is buying some machine tools and is an important customer in the supply market.

Reports are current that the trunk line railroads handling New England freight are trying to abolish the differentials, privileges upon which the manufacturers of these States depend. Should such an attempt succeed it would make an important difference to shippers here. On machinery the increase in rates West would be $3.80 a ton and on tools $3. But it is not at all likely that such an effort, should it be seriously made, would have a chance of success. Probably politics figure in the rumors. The lease of the Boston & Maine to the New York, New Haven & Hartford may be at the bottom of it; the Massachusetts Legislature is not disposed to sanction the combination. After the first alarm of the original publication of the report business men have been disposed to regard it as small cause for worry.

The Carlyle Johnson Machine Company, Hartford, Conn., manufacturer of friction clutches and marine reverse gears, has purchased the industrial property at Manchester, Conn., formerly occupied by the Eastern Biscuit Company, and will remove its plant there as soon as the necessary arrangements can be made. The company has outgrown its present shop at 356 Asylum street, Hartford, and for some time has been

looking for suitable buildings for its occupancy. Those at Manchester possess all desirable features. The main building is 40 x 200 ft., three stories, with one story annex 36 x 160 ft., and there is a one story office building 32 x 32 ft., and a warehouse 32 x 135 ft. The six acres of land are on the main street of the city, within two blocks of the New York, New Haven & Hartford Railroad, and bounded on one side by the railroad of the Cheney Bros., offering facilities for running a side track to the buildings. The plant is modern in all respects, being equipped with automatic sprinklers, 60 hp. Atlas engine, boilers and electric generator, watchman's clock system and telephone service. The company has been handicapped in its present quarters by having been compelled to remove some of its heavy machinery because of structural weakness in the building, and these tools, together with the other equipment, will be installed at Manchester. The main floor of the large building will be used for manufacturing in the beginning and the basement as a stock and shipping room.

Charles W. House & Sons, Unionville, Conn., will be in the market for a 24-in. shaper, 20-in. drill press and other machine tools about June 1. The firm's felt mill was burned recently, entailing a loss of $75,000. Temporary quarters are now occupied pending the erection of a new mill, the contract for which has been let.

The Wright Wire Company, Worcester, Mass., has completed plans for a new building to be erected at Worcester to replace that destroyed by fire recently. It will be 60 x 140 ft., and four stories, with heavy pilastered walls. A portion of the front end will have steel beams and concrete floors. The machine shop building also suffered and will be repaired and a new roof put on, probably of the saw tooth type. Extensive use will be made of steel framed windows of the wired glass manufactured by the company. In the fire the windows of this material withstood the flames in a manner to demonstrate their value in fireproof construction. Plans have not been made for the company's rope mill at Palmer, Mass., which was totally destroyed the day after the Worcester fire, but the intention is to build it fireproof throughout, as it houses costly heavy machinery which has to be built special.

The Powell Tool Company, Worcester, Mass., manufacturer of metal planers, has made an assignment to E. W. Whitmore of that city. The company's liabilities are small and the assets are sufficient to take care of them, it is stated. The assignment is preliminary to reorganization on a more substantial financial basis, preliminary steps toward which are now being taken.

The Becker Milling Machine Company, Hyde Park, Mass., has prepared plans for a large shop building, which will in part replace an older structure, and which will about double the present manufacturing space. Work will not begin at once, however, something depending upon the market. The details of the new structure are not available.

The Acetylene Construction Company, 36 Pearl street, Hartford, Conn., has been incorporated in Connecticut with authorized capital stock of $100,000. The company states that it is not the intention to do actual manufacturing, but rather to act as dealer and constructor, and therefore no machinery will be required. Pipe, gas fittings, &c., will be used. C. G. Cheney, Essex, Conn., is the president; C. J. Bates, Chester, Conn., vice-president; E. N. Frary, South Deerfield, Mass., treasurer; Charles E. Smith, Chester, secretary, and Oliver D. Cornell, Hartford, assistant secretary. The company will engage in the installation of public and private lighting plants, plumbers' and pumping outfits and gas and gasoline engines.

The New Haven Novelty Company, 28 Whitney avenue, New Haven, Conn., has begun the manufacture of a line of patent wrenches, surface gauges, gas heaters and metal novelties. William Hurley and Henry Mardt are the partners.

The Chase Corporation, Waterbury, Conn., has been incorporated under Connecticut laws with an authorized capital stock of $5,000,000. The incorporators are the officers: H. S. Chase, president, F. S. Chase, treasurer, and Irving H. Chase, secretary. The company states that it is not the intention to engage actively in the manufacturing business at the present time, but rather to use the organization as a holding company to cover common interests and protect the independence and individuality of companies now controlled and ownerships now existing or that may be acquired. The original subscribed capital is $15,000, this being for the purpose of organization, and the issued stock will be added to as the directors may determine. The Chase interests include the Chase Rolling Mill Company, Waterbury Clock Company and the Waterbury Mfg. Company.

The Industrial Exposition at Worcester, Mass., was successful beyond the expectations even of its projectors. The exhibits were typical of the city's varied industries, and machine tools and accessories were prominent. The machinery was shown in operation, with electric drive, and a number of interesting tests and demonstrations were made, illustrating the capacities of the machines and of the cutting tools. The electrical exhibit of the Worcester Polytechnic Institute attracted much attention. The attendance was very large, in fact so large as to interfere with the comfortable enjoyment of the exhibits, especially in the evenings. There were many visitors from out of the city, including prominent manufacturers from various parts of New England and elsewhere. The exhibitors included the Crocker-Wheeler Company, Blake Pump & Condenser Company, Fitchburg, Mass.; Norton Company, Norton Grinding Company, W. H. Leland & Co., Boynton & Plummer, Chandler & Farquhar Company, Boston; Coates Clipper Mfg. Company, H. A. Desper Mfg. Company, Hill Dryer Company, L. Hardy Company, R. E. Kidder, Lowell Wrench Company, Oakley Steel Foundry Company, Millbury, Mass.; Pratt & Inman, Prentice Bros. Company, Ramsdell Specialty Company, Francis Reed Company, William J. Smith & Co., New Haven, Conn.; J. E. Snyder & Son, Stockbridge Machine Company, Walden Mfg. Company, Walker Grinder Company, Washburn Shops, Wells Chemical Bronze Works, Wire Goods Company, White & Bagley Company and Worcester Pressed Steel Company.

The Arlington Mills, Lowell, Mass., is planning to build a new mill, 110 x 600 ft. and four stories. The Pepperell Mfg. Company, Biddeford, Maine, has made plans for a weave shed, 135 x 385 ft. The Hemingway & Bartlett Silk Company, Watertown, Conn., will erect a two-story addition to its mill. The Estes Mills, Fall River, Mass., will add a knitting mill, 60 x 110 ft. and two stories.

Government Purchases.

WASHINGTON, D. C., April 6, 1909.

The Isthmian Canal Commission will soon ask bids for a 15-hp. shunt wound direct current motor, air compressor, turret lathe, centering machine, 14-in. friction drill, extra heavy squaring shears, hand power press, bolt cutter, single surface wood planing machine, 38-in. band saw, 12-in. joiner and other supplies.

The following bids were opened March 29, Circular No. 497, for machinery for the Isthmian Canal Commission:

Class 1.—One 20-ton locomotive coaling crane—Bidder 1, American Hoisting & Derrick Company, St. Paul, Minn., $13,316; 15, Brown Hoisting Machinery Company, Cleveland, Ohio, $15,616; 16, Browning Engineering Company, Cleveland, Ohio, $13,878.50; 60, Industrial Works, Bay City, Mich., $14,714; 61, Interstate Engineering Company, Bedford, Ohio, $16,560; 144, Cleveland Crane & Engineering Company, Wickliffe, Ohio, $14,400.

The following bids were opened March 30 for machinery for the navy yards:

Class 1.—One Tabor universal tool grinding and shaping machine—Bidder 166, William Sellers Company, Philadelphia, Pa., $1085; 174, Tabor Mfg. Company, Philadelphia, Pa., $1150.

Class 61.—Two motor driven reversible deck winches—Bidder 76, Hyde Windlass Company, Bath, Maine, $2700; 184, Williamson Brothers Company, Philadelphia, Pa., $2550.

The following bids were opened on March 27 at the Bureau of Yards and Docks, Navy Department, Washington, for additional machinery for the power plant at the navy yard, New York:

Item 1, net price for condensers, pumps, piping and other equipment complete in accordance with plan and specification; 2, under this item bidders may submit proposals for the complete work in accordance with the spirit of the specification but with such modification of methods and details as they desire, provided all such modifications are fully specified or indicated upon plans accompanying the proposal.

G. & W. Mfg. Company, New York, item 1, a, $15,900; b, $16,600; c, $16,600.

E. Rutzler Company, New York, item 1, $12,366; add $244.

D'Olier Engineering Company, Philadelphia, Pa., item 2, $11,950.

Evans, Almirall & Co., New York, item 1, $11,960; 2, $11,800.

Walworth Mfg. Company, Boston, Mass., item 1, $11,778, deduct $175 conditionally, $10,998, $10,923 and $10,115.

Under bids opened March 24, Circular No. 498A, for supplies for the Isthmian Canal Commission, the Stephens-Adamson Mfg. Company, Aurora, Ill., has been awarded class 1, cement hoppers and screens, $1530, and the Jeanesville Iron Works, Hazelton, Pa., class 2, three horizontal duplex piston pumps, $4200.

Under bids opened February 9 for machinery for the navy yards, the Williamson Brothers Company, Philadelphia, Pa., has been awarded class 91, one steering engine and gear, $14,950.

The following awards have been made for machinery for the navy yards, bids for which were opened March 9:

Terry Steam Turbine Company, New York, class 111, six 5-kw. turbo-generator sets with spare parts, $3912.

Joyce-Cridland Company, Dayton, Ohio, class 183, five hydraulic jacks, $324.60.

Under bids opened March 16 for machinery for the navy yards, the General Electric Company, Schenectady, N. Y., has been awarded class 182, one controller and generator, $342.

At the recent annual meeting of Wm. Jessop & Sons, Ltd., Sheffield, England, it was stated that since the company had large interests in the United States and the American iron trade had been much depressed, the results for 1908 were very unfavorable. While the improvement in the American demand had been disappointing, the February shipments to the United States were nearly twice those of February, 1908.

HARDWARE

THE unique position of The Iron Age is illustrated in the number and variety of the questions which are constantly sent in relating to a multitude of subjects, most of them closely but some of them remotely related to the trade. These inquiries very frequently call for the names and addresses of manufacturers of certain goods in the line of Machinery, Metals, Hardware or related goods which our correspondents desire to purchase. Advice also is sometimes solicited or an expression of opinion asked on practices in the trade or special questions of business policy. Besides questions of this class which are not usually of general trade interest, there are many other questions constantly coming up which relate to matters which directly concern Hardware merchants generally, and especially the retail merchants of the country. These questions refer to a wide range of subjects—store arrangement and approved methods of carrying and exhibiting goods; the propriety of certain trade practices; measures resorted to by manufacturers, jobbers or retailers in marketing goods; accounting and bookkeeping methods; classes of articles which can advantageously be taken up as side lines; methods of extending business, and a multitude of other matters of direct practical interest. It is always a pleasure to give careful attention to these inquiries and through our staff and with our exceptional facilities to serve our correspondents with the best information, advice or suggestion at our command.

A continuance of these inquiries is invited but we are adopting a new method of taking care of those which relate to matters of general trade interest. These will be discussed in the Question Box, the opening of which was announced in our last issue. In this connection it is gratifying to acknowledge the approval with which the Hardware merchants regard this new department. It is evidently appreciated by them as affording an excellent opportunity for the discussion of trade questions and the bringing out of practical suggestions on major and minor matters connected with the conduct of the Hardware business. Questions asking for information in regard to the names and addresses of manufacturers and other inquiries of interest only to our correspondents will be answered by mail as heretofore, and only those of general interest will be discussed through the Question Box.

Those who attend the meetings of the various State associations know how interesting a part of the programme is that devoted to the Question Box, which, notwithstanding the limitations and difficulties which often attend its management, is usually exceedingly profitable and suggestive, keeping the attention of the members, even in competition with formal addresses or elaborate papers, no matter how eloquent or how carefully prepared. The inquiries usually relate to subjects intensely practical, presented in definite and concrete form, on which merchants desire the benefit of the opinion and experience of other merchants. The questions thus have a living interest, and the answers come with directness and something of a personal warmth from fellow merchants who have to meet and solve the same problems. Those who are familiar with the working of the Question Box in well conducted State associations are enthusiastic in their expressions as to the usefulness of THE IRON AGE QUESTION BOX. Among the advantages which they refer to as possessed by it are the following:

That THE IRON AGE QUESTION BOX is always open and not limited to a few short hours at an annual gathering.

That owing to the fact that The Iron Age is in touch with all branches of the trade, manufacturers and merchants, wholesale and retail, the questions will naturally be considered broadly and with an opportunity for an expression of opinion by any of these great classes.

That the circulation of The Iron Age in all parts of the country among the trade, large and small, will make the discussions much more representative and suggestive than is possible when the interchange of opinion is limited to the merchants of a single State.

Among those who are notably enthusiastic in commending the Question Box are officials of various Hardware associations who recognize it as a means of bringing together and benefiting the trade, and thus promoting the great object for which Hardware associations have been organized.

While many of the questions will be commented on editorially, the principal object of the Question Box is to give expression to the views and experience of the trade through the asking and answering of questions. It is intended that it shall be a channel through which there shall be an interchange of opinion and information between the merchants, and especially the retail merchants, of the country. The aim will be to make it both interesting and useful in the variety and practical importance of the subjects discussed. In this endeavor to serve the Hardware trade along new lines WE EARNESTLY SOLICIT THE CO-OPERATION OF OUR READERS IN CONTRIBUTING BOTH INQUIRIES AND ANSWERS TO THE IRON AGE QUESTION BOX.

Condition of Trade.

Since our last review the market has remained without important change in its general features. The uncertainty in regard to the tariff and the Iron market continues, tending to keep trade in a waiting attitude so far as business out of the regular and safe course is concerned. There is, however, in the country at large a liberal movement of merchandise and notwithstanding the complaints which are often made in regard to business the manufacturers and merchants are enjoying a fair trade, with the volume of which they would have been well content a few years ago. With the great increase in facilities in producing and distributing goods so that plants, industrial or commercial as the case may be, are not occupied to their fullest capacity, there is a tendency to emphasize unduly the fact that the demand is moderate and sluggish as compared with two or three years ago. This is one of the penalties of enterprise and growth. When the quiet time comes the reaction is felt. Taken all in all the situation should be regarded with satisfaction. A fair volume of business is doing, especially in the agricultural sections. There is no great peril in sight. Things are undoubtedly working out and getting into better shape. Even if there is a slackening of the pace trade is keeping up a fair gait. In the matter of prices there is little new to report. The great staples, Wire and Wire Nails, remain remarkably regular owing largely to the fact that the mills do not want to precipitate a price war, and are also reluctant to reduce quotations in the midst of the spring demand and before

the merchants have had an opportunity to work off their stocks. In a good many lines there is a quiet revision of prices going on, but manufacturers generally realize that little will be gained by attempting to secure business by making concessions. In the present disposition of the trade merchants are limiting their purchases to their requirements and are not at all inclined to speculate. The question of the crops is now coming definitely to the front as a feature of importance in its relation to future business. It is generally recognized that a good yield at good prices will have great influence in quickening business and bringing in renewed prosperity.

Chicago.

Reports for March in the Hardware trade indicate an upward slant in the curve of demand, and while the pitch is not steep enough to inspire great enthusiasm, it is nevertheless sufficiently pronounced to be reassuring. The general volume of business for March among Western jobbers seems not only to be well ahead of the corresponding month last year, but is also in excess of the preceding month. As to the fact of increased demand there is therefore no room for doubt; but how rapidly it may be expected to expand is not so clearly defined. There is, however, good reason to believe that with the advance of spring activities the wants of consumers will continue to develop in many directions. Apprehension of further reduction in prices, especially on some of the heavy staples, still acts as a bar to buying ahead of immediate requirements. Wire and Wire products have suffered no open recession from the established level, which is reported to be reasonably well maintained. At the same time, both jobbers and retailers seem to be strongly inclined to liquidate such stocks as far as possible without impairing their ability to supply the current demand. Cast Iron goods are more or less affected by the decline in Pig Iron, which upon a basis of present cost of production is believed to have settled close to the bottom limit. Black and Galvanized Sheets are holding pretty steady at the new price, and are moving more freely than for some time. Considerable betterment is observed in railroad purchases, and although requisitions are still being carefully trimmed, the cumulative effect of many months of stinted buying is being felt in multiplied wants. In a few instances depleted store stocks are being replenished in a limited way, and it is the opinion of the trade that a steady increase in railroad demand may be confidentially expected. The building outlook as reflected by the permits taken out in Chicago for the month of March promises a busy season. The total cost of building for March was $8,145,800, an increase of nearly 50 per cent. over the same month last year. Approximately the same percentage of increase is shown in the comparison of the totals for the first quarter of 1909 as compared with the same period of the previous year.

NOTES ON PRICES.

Wire Nails.—Market conditions remain substantially unchanged, with perhaps a slightly diminished demand upon the manufacturers, which may be attributed to the natural restriction of spring buying at this season. Orders are still confined to comparatively small lots, being limited to actual requirements. Quotations continue as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers	$1.95
Carload lots to retail merchants	2.00
Less than carloads to jobbers	2.00
Less than carloads to retail merchants	2.10

New York.—Buying is confined to small lots, on account of lack of consumptive demand, also because merchants are not assured of the stability of the market. Wire Nails are held at $2.25 per keg, base, in small lots at store; which price is rather indifferently maintained by some sellers.

Chicago.—The Nail market presents no new features of marked interest, there being no new buying other than that required to meet current needs. Specifications are subject to the same influences and are not extended to cover anticipated requirements beyond the interval of closely following shipments. It is hardly expected that conditions will change so long as the future course of prices remains in doubt. In the meantime, however, the actual volume of consumption is not likely to diminish, and trade will be governed by its demands. The regular schedule of prices is being fairly well observed by the principal mills. Quotations are as follows: $2.13 in car lots to jobbers, and $2.18 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—The spring trade is nearly over, and as a result, new demand for Wire Nails is showing a falling off, and operations by the mills are not as active as they have been. It is probable that output will be gradually restricted from this time forward, in the effort of the mills to maintain regular prices. The trade continues to confine its purchases of Wire Nails to small lots for actual needs, the desire being to keep stocks as low as possible, in view of a possible change in prices to a lower basis. We are advised that the regular price of $1.95, Pittsburgh, on Wire Nails, is being fairly well maintained.

Cut Nails.—The trade is continuing its conservative course in placing orders, which are in most cases restricted to actual needs. Concessions from regular quotations do not stimulate the placing of large orders, because of the uncertainty in regard to the maintenance of present values. Steel Cut Nails continue to be regularly quoted at $1.80, base, per keg, f.o.b. Pittsburgh, for carloads, but on desirable orders this price is frequently shaded from 5 to 10 cents. Iron Cut Nails are held at an advance of 10 cents per keg over Steel Cut Nails in the Western market, but in the East this differential is not observed.

New York.—The local demand for Cut Nails continues light. In small lots at store Cut Nails are held on the base price of $2.05 per keg.

Chicago.—A disposition to ignore the usual Pittsburgh freight deferential in Cut Nails is noted in recent prices made in this market, where a shade better than $1.80, Chicago, has been done in car lots. The volume of business moving is, however, still limited to actual needs, and buyers show no disposition to take advantage of price concessions to stock ahead. Consumption is increasing slowly, and more pronounced results are looked for in consequence of the extended building operations in prospect. Regular quotations, which are subject to shading of 10c. a keg in small lots, are as follows: In carload lots, to jobbers, Iron Cut Nails, $2.08; Steel Cut Nails, $1.98.

Pittsburgh.—Jobbers and retailers alike are buying Cut Nails in small lots to meet actual needs, owing to the uncertainty in regard to whether present prices will be maintained. With the spring trade pretty well over it is not unlikely demand for Cut Nails, as in the case with Wire Nails, will show a falling off. The regular price of Cut Nails is $1.80, Pittsburgh, but on desirable orders this price is shaded from 5c. to 10c. per keg.

Barb Wire.—An improvement in demand is noted, but orders continue for small lots, as the uncertainty of the market's future deters the placing of contracts. Quotations are on the following basis, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots	$2.10	$2.40
Retailers, carload lots	2.15	2.45
Retailers, less than carload lots	2.25	2.55

Chicago.—The demand for Barb Wire, which was slow in developing, is considerably improved, and is now leading Wire Nails in tonnage. Buyers are ordering as sparingly as possible, with a view to avoiding accumulation of stocks, and as long as the maintenance of prices is open to question this policy will doubtless be pursued. In the South, the fence building season is well advanced, but in Northern territory it will not close for six weeks or more. Prices are being held with satisfactory regularity. Quotations are as follows: Jobbers, Chicago, car lots, Painted, $2.28; Galvanized, $2.58; to retailers, car

lots, Painted, $2.33; Galvanized, $2.63; retailers, less than car lots, Painted, $2.45; Galvanized, $2.75; Staples, bright, in car lots, $2.25; Galvanized, $2.55; car lots to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—There is a better demand for Barb Wire owing to the starting up of spring fence building, and the mills report a slight increase in new orders. The jobbing trade and consumers alike continue to confine their orders to small lots for actual needs, owing to the uncertainty as to whether present prices will be maintained.

Plain Wire.—Fence building is now in active progress and Wire is in larger demand. Caution in buying is in evidence, however, as in other Wire products, and orders are restricted to nearby requirements. Quotations per 100 lb. to jobbers in carload lots are as follows, on a basis of $1.80 for Plain and $2.10 for Galvanized, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days, the usual price to retailers being 5 cents additional:

Nos.	6 to 9	10	11	12&12½	13	14	15	16
Annealed	$1.80	1.85	1.90	1.95	2.05	2.15	2.25	2.35
Galvanized	2.10	2.15	2.20	2.25	2.35	2.45	2.85	2.95

Chicago.—Fence manufacturers are specifying conservatively and measuring their orders by the work in hand. Now that the Fence building season is fully open shipments are moving more freely, but there is no new buying for other than current wants. As in other divisions of the market, uncertainty as to future values is the chief retarding influence. For the present the current schedule of prices is being generally maintained. We quote as follows: Car lots to jobbers, $1.98, f.o.b. Chicago, and to retailers, $2.05.

Pittsburgh.—The manufacturers report that specifications on contract orders are coming in more freely, and that new orders, while confined to small lots for actual needs, aggregate considerable business. The trade is buying conservatively in small lots for actual needs, owing to the uncertainty as to the future course of prices. So far mills have shown little, if any, disposition to shade prices to stimulate demand. The regular price of Plain Wire is $1.80 and Galvanized $2.10, f.o.b. Pittsburgh, subject to usual discounts.

Liquid Fish Glue.—The B. F. Elwell Glue Company, Rockport, Mass., manufacturer of Elwell's Liquid Fish Glue, has issued the following new price-list, which is subject to a discount of 50 per cent.:

LIST A.

1 oz. bottles, 1 dozen in box, per gross.....$14.40
2 oz. bottles, 1 dozen in box, per gross..... 21.60
Packed in gross and half-gross cases.

Tin Cans with Adjustable Brush.

½ gill, 1 dozen in box, per gross.....$28.00
1 gill, 1 dozen in box, per gross..... 32.00
Packed in gross and half-gross cases.

LIST B.

Mechanics' Glue in Tin Cans.

½ pints, 2 dozen in case, per dozen..... $3.80
Pints, 1 dozen in case, per dozen..... 6.50
Quarts, 1 dozen in case, per dozen..... 12.00

LIST C.

Mechanics' Glue in Tin Cans.

½ gal., ½ dozen in case, per dozen.....$22.00
1 gal., ½ dozen in case, per dozen..... 40.00

Quotations on Mechanics' Glue in kegs and barrels and Billiard Cue Cement will be furnished on request.

Sash Weights.—There is a perceptible improvement in the Sash Weight situation as the manufacturers have apparently had enough of the irregularity and demoralization which has recently prevailed, with the result that prices have been forced down to an unprofitable level. There has been within a week or so a general withdrawal of extreme figures and the establishment of more uniform prices in the various territories. The market is thus represented in the East by the quotation of $22.50 on carload lots, delivered, and $24 on less than carload lots, delivered. In the West the regular quotation is $20, f.o.b. factory, but a lower figure is still made by some foundries. Promising indications for building during the season are doubtless having some effect in bringing about the improved condition in this line.

Rope.—The market shows some encouraging features in the way of inquiries, indicating an inclination to purchase in larger quantities, there being also a slight increase in the number of small orders. While neither of these features are strongly marked, the change from partial stagnation in this line is easily regarded as prophetic of further enlargement of demand. Prices continue without material change, general quotations on small quantities of Rope, 7-16 in. in diameter and larger, being as follows: Pure Manila, 8¼ to 8½ cents; Pure Sisal, 6¾ to 7 cents. Mixed grades of both kinds grade down in price according to quality. Jute Rope, ¼ in. and up, No. 1, is 6¼ to 6½ cents, and No. 2, 5¼ to 5¾ cents.

Window Glass.—From reports at hand indications seem to favor the formation of the Imperial Window Glass Company, toward which end so much effort has been expended. Glass manufacturers who have held out against the organization of this selling company have lately shown a willingness to join in the project. At a meeting held last week 1500 pots were represented out of 1509 hand operated pots now in blast. It is understood that a charter has been arranged for and will be ready for a meeting to be held in the near future. The rate at which Window Glass is being produced is largely in excess of the present demand, and the output will be materially reduced if present plans are carried out. As an offset to this encouraging outlook for the stability of the Glass market is the announcement of the American Window Glass Company of an increase in its discounts from 90 and 30 per cent. on single and 90 and 35 per cent. on double, to 90 and 40 per cent. on single and 90 and 40 and 10 per cent. on double, from manufacturers' list of January 1, 1901. If these prices obtain for any length of time they will result in the closing down of at least some of the hand operated Glass plants. Jobbers' discounts, which appear to be more or less general all over the country, have been 90 and 35 per cent. on single and 90 and 40 per cent. on double, from jobbers' list, October 1, 1903.

Linseed Oil.—The market shows no signs of a revival of interest by buyers who continue to purchase in very limited quantities, sufficient for early requirements. In the local market prices have held fairly steady at card prices, for small lots. Carload lots of Western Oil are reported as obtainable on the basis of 52½ to 53 cents per gallon for Raw. Card prices in 5-bbl. lots are as follows: State and Western Raw, 55 cents per gallon; City Raw, 56 cents per gallon. Boiled Oil is 1 cent advance on Raw. In a circular recently issued by an Eastern crusher the statement is made that the advance in the price of Linseed Oil beyond what has been a normal figure during the past six or seven years has resulted in the putting on the market of adulterated Linseed Oil and so-called substitutes under the name of paint oils, purporting to be as good as Linseed Oil. The attention of dealers and consumers of Linseed Oil is called to the stringent laws which now prevail against the sale of these substitutes as pure Linseed Oil and the severe penalty imposed for so doing. It is shown that the laws regarding the handling and sale of these Oils are now so framed that innocent parties are liable to suffer unless they refuse absolutely to use or deal in anything but the pure article.

Spirits Turpentine.—The market has declined about 1 cent during the week under review, but a further downward tendency was checked by lighter receipts of new crop at Southern points. The demand at this point is confined to jobbing lots. The following prices represent the New York market: Oil Barrels, 39 to 39½ cents; Machine Made Barrels, 39½ to 40 cents per gallon.

THE W. B. HOWE PLUMBING & HARDWARE COMPANY, St. Joseph, Mo., has recently been incorporated to succeed W. B. Howe. The company is now erecting a two-story brick building at the southeast corner of Illinois and Gordon avenues, which when finished will be stocked with a full line of Hardware, Paints, Glass, Oils, &c. Five men are employed in the plumbing and heating department. The officers are: W. B. Howe, president; David T. Aitchison, vice-president, and William A. McLey, secretary and treasurer.

TRADE ITEMS.

THE PURITAN CORDAGE COMPANY, Louisville, Ky., has been organized with a capital stock of $75,000. The incorporators are Avery Robinson, Charles T. Wolfe and Charles A. R. Ray. The erection of a plant which with the machinery will cost between $50,000 and $75,000 will shortly be commenced on the outskirts of the city. It will contain about 40,000 sq. ft. of floor space and will be equipped with the most modern machinery. The officers of the company are Charles T. Wolfe, president; Avery Robinson, vice-president, and George W. Babcock, secretary-treasurer.

THE OFFICIAL GAZETTE of the Iowa Retail Hardware Association, containing the proceedings of the 11th annual convention held at Des Moines in February, has just been issued. Besides the report of the meeting portraits are presented of the officers of the association and of the national organization, as well as reproductions of some of the more prominent exhibits made by manufacturers at the Hardware exposition held in conjunction with the convention.

THE MANHATTAN ELECTRICAL SUPPLY COMPANY, 17 Park place, New York, will about April 15 open another city branch, located at 37 West 125th street, a similar depot having been established last year at 110 West Forty-second street.

AFTER April 12 the main office of the American Manganese Bronze Company will be at the works, Holmesburg, Philadelphia, Pa., where all correspondence should be addressed. The company will still retain its quarters at 90 John street, New York, as a sales office, it being the intention of W. A. Locke, secretary-treasurer, to be in New York on Thursday of each week. The company is sole manufacturer of Spare's manganese, white and hydraulic bronze. The officers of the company are U T. Hungerford, president; C. R. Spare, vice-president, and W. A. Locke, secretary-treasurer.

THE NEW JERSEY WIRE CLOTH COMPANY, Trenton, N. J., manufacturer of Wire Cloth of all kinds, Netting, Fencing, &c., has opened a store at 627 Market street, Philadelphia, where it will carry a complete stock of its regular products. Embraced in the territory of this store are eastern Pennsylvania, southern and western New Jersey, Delaware and eastern Maryland.

W. H. DONALDSON, treasurer of the Russell & Erwin Mfg. Company of New York, has entered upon a vacation for a few months, spending the time in recreation and recuperation. For the past six years Mr. Donaldson has had full charge of the credits of the company at this point; in fact, the greater portion of his 40 years' service with the company has been along accounting lines. The high standing of the credit department under his administration is attested by the exceedingly small percentages of losses and the frequent requests for information regarding the standing of business houses all over the country received from leading New York banks and financial institutions.

THE plant of the Penn Shovel Mfg. Company, Warren, Ohio, has been purchased by C. B. Loveless and D. L. Helman of that city, and a new company is in process of organization. It is announced that the rolling mill department of the plant will be placed in operation by May 1.

THE BRONSON-WALTON COMPANY, Cleveland, Ohio, has sold its Wire Rope Clamp business to the Lamson & Sessions Company, Cleveland, which will continue it in connection with its large output of Bolts and Nuts. For the future the Bronson-Walton Company will confine its activity to Roasting Pans, Dripping Pans, Family Coffee Mills and other household articles which have represented its principal business.

The Barrett Hardware Company, Joliet, Ill., which was burned out last spring and has since been occupying temporary quarters, has acquired a permanent location on the west side of Ottawa street, between Jefferson and Van Buren streets, which the company regards as one of the best locations in the city. The building known as the Sans Building is now undergoing alterations and enlargement which will make it suitable for the company's use and afford the room and accommodations required for its increasing business. It is expected that the new quarters can be occupied some time during the summer.

A UNIQUE WINDOW DISPLAY.

A Thresher's Merry Widow.

THE accompanying illustration shows a female figure, made entirely of Thresher goods, which was shown in the store window of A. Marckel, Perham, Minn., during the threshing season. Surrounded by Thresher supplies, it was the center of a very catchy and effective display. The merry widow, as the lady was called, was created by one of the clerks in the store. The crown of her hat was made of 4-in. Belting and the brim of Rubber Hose. A small coil of Gandy Belting served as a face, which was crowned with hair made of Hemp packing. Her waist, fastened in front with Belt Hooks, was made of Lace Leather, as were the sleeves, and she wore a collar fastened at the throat with a Rogers Belt Punch. Her skirt was made by winding a roll of Leather Belting tightly around the waist and letting it run down to the floor in spiral coils, giving the effect of tucks. This clever and original contrivance attracted much attention to Mr. Marckel's line of Thresher goods.

A Thresher's Merry Widow.

The Leslie-Taylor Hardware Company, Sherman, Texas, has been organized to take over the Hardware stock and workshop of Hardwicke-Etter Hardware Company, which will hereafter devote its attention to the mill supply business. E. M. Anderson, J. A. Wallace, M. H. Hunter and Richard Slaughter, formerly identified with the Hardwicke-Etter Hardware Company, are interested in the new concern, as are C. W. Taylor and Will Leslie, formerly connected with Roberts, Sanford & Taylor Company. Business will be conducted upon the same line as heretofore, handling Tools, Hardware, Mantels and Grates.

The Townsend Hardware Company, successor to L. H. & C. D. Townsend, Oneonta, N. Y., has been incorporated with a capital stock of $30,000 to carry on the wholesale business. The incorporators are Lucius H. Townsend, Charles D. Townsend and Clarence M. Lyman. The company will handle Shelf and Heavy Hardware, Stoves and Tinware, Paints, Oils, Sporting Goods; also Plumbing and Heating Supplies.

Price-Lists, Circulars, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

CARPENTER-MORTON COMPANY, 77-79 Sudbury street, Boston, Mass.: Booklet relating to its Smooth Surface Natural Asphalt Roofing, Quality Brand.

DUFF MFG. COMPANY, Pittsburgh, Pa.: Catalogue H illustrating Barrett Jacks; also Duff Ball Bearing and Roller Bearing Screw Jacks. Another catalogue is devoted to Duff-Bethlehem Forged Steel Hydraulic Jacks.

GOULDS MFG. COMPANY, Seneca Falls, N. Y., New York branch, 16 Murray street: Booklet relating to the company's Double Acting Force Pumps, including the Empire, Seneca and Advance lines.

OWOSSO MFG. COMPANY, Owosso, Mich.: Catalogue and price-list devoted to Snow Shovels, both wood and steel, in a variety of sizes and styles.

IRWIN AUGER BIT COMPANY, Wilmington, Ohio, for whom C. K. Turner & Son, 116 Broad street, New York, are export agents: Illustrated descriptive catalogue, No. 9, of Irwin patent solid center stem Augers and Bits, with both single and double cutters, in a great variety of patterns and sizes, together with Screw Driver Bits, Conveyors, Nail Sets, Countersinks, Auger Handles, Paper Knife and similar specialties.

WRIGHTSVILLE HARDWARE COMPANY, Wrightsville, Pa., New York office, 693 Broadway: Catalogue No. S-1, devoted to Cast Iron Hardware, Coffee Mills, Housefurnishing Specialties, &c., including the Logan & Strobridge Iron Company's lines. In addition to its regular goods the company continues to make to order Small Gray Iron Castings tinned, japanned, nickel plated and galvanized.

HAZARD LEAD WORKS, Hazardville, Conn.: Booklets, circulars, color cards, advertising hangers, &c., referring to its line of White Lead, Mixed Paints, Colors in Oil, Opake White for interior use, Putty, &c. A special feature is the company's Corporation Brand of Ready Mixed Paints, which are said to be adapted to wood or iron work of every kind, being recommended for painting factories, bridges, railroad cars, boats, outbuildings, &c.

HOGGSON & PETTIS MFG. COMPANY, New Haven, Conn.: Illustrated catalogue 8C, of Sweeland Lathe Chucks, with independent, geared scroll, combination and face plate jaws. C. K. Turner & Son, 116 Broad street, New York, are export agents for the company.

The Pittsburgh Conventions.

FOR the convenience of Western Hardware jobbers and manufacturers who expect to attend the sixteenth convention of the American Hardware Manufacturers' Association and the nineteenth annual convention of the Southern Hardware Jobbers' Association, which are to be held concurrently at Pittsburgh, Pa., on June 9, 10 and 11, ample arrangements for transportation are being made by W. H. Bennett, 40 Dearborn street, Chicago, whose ability in providing all necessary comforts for such a trip have been frequently demonstrated. Provision has been made for special cars to be attached to the Lake Shore Limited leaving Chicago on Monday evening, June 7, arriving at Pittsburgh the following morning. A fare of $8.45 one way for each person has been secured for a party of 10 or more traveling together on this train, and for those traveling alone the fare will be $9.50 in each direction.

Those who prefer to start later than Monday evening can leave at the same hour on the Lake Shore Limited each day, but in order to make sure of proper accommodations, reservations in the regular Pittsburgh sleeper should be made in advance. Upon notification this service will be performed by Mr. Bennett, who desires to be advised as early as possible by those who expect to attend the meeting of their intention and the date they desire to leave Chicago, so that sleeping car reservations can be made accordingly.

Requests for Catalogues, Etc.

The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM WALBERTS & TIMBERLAKE, who operate Hardware, Stove, Implement, Vehicle and Harness stores at Columbus and West Mineral, Kan.

FROM F. A. CLARK, 29 Murray street, New York, who wishes to receive catalogues and trade literature from manufacturers of Shelf Hardware, Kitchen Utensils, House Furnishing Goods and Hardware specialties.

FROM NICHOLAS & LENSLEY, who have purchased the stock of John P. Burke, Harrisonburg, Va., and will conduct a wholesale and retail business, carrying a full line of Hardware and building materials.

CHARLES H. TURNER has resigned from the presidency of the Albany Hardware & Iron Company, Albany, N. Y., which he has held since its organization as the successor of Maurice E. Viele in 1891. He has been identified with the Hardware business since his boyhood in New London, Conn., where his apprenticeship was served, after which he became city buyer for a New York jobbing house. The growth of the present company under Mr. Turner's direction has been notable, and it now ranks as one of the principal mercantile establishments in Albany. Mr. Turner is widely and favorably known in the trade and has been prominently identified with Hardware jobbing associations, local, State and national, being at present one of the Executive Committee of the National Association. He was a juror on awards at the Pan-American Exposition at Buffalo and was elected chairman of the Jury of Hardware and Kindred Goods at the Louisiana Purchase Exposition in 1904, receiving a diploma and medal in recognition of services performed by his jury of 22 members from countries of the world. Having been a busy man for so many years, Mr. Turner will seek rest for a period before possibly taking up some branch of the Hardware business of less exacting demands.

THE HARDWICKE-ETTER HARDWARE COMPANY, Sherman, Texas, has sold to the Leslie-Taylor Hardware Company, also of Sherman, the retail department of its business. Hereafter the Hardwicke-Etter Company will devote itself exclusively to jobbing regular lines of machinery and supplies, including Belting, Packing, Pipe, Fittings, Valves, &c. It will also go more heavily than heretofore into Sheet Iron, Bar Iron, Bolts, Nuts, &c., and will handle a large variety of mill and mechanics' tools. The officers of the company are George Hardwicke, president; Joe F. Etter, vice-president; James Biggs, secretary, and E. M. Anderson, treasurer.

IN addition to the large roofing manufacturing plant at East St. Louis, Ill., operated by the General Roofing Mfg. Company of that place, a new and extensive plant has been erected at Marseilles, Ill. General views of both plants are given in a booklet issued by the company, which, as therein stated, owns and operates its own asphalt and coal mines and controls and produces all of the crude products used in its factories. Besides selling offices in Chicago, Minneapolis and San Francisco, distributing warehouses are maintained in a number of the principal cities of this country and Canada.

THE SUN MFG. COMPANY, Columbus, Ohio, has arranged with C. K. Turner & Son, 116 Broad street, New York, to represent it in the export trade and to look after all export business for the company as direct representative. C. K. Turner & Son do no direct business abroad, but represent numerous manufacturers of American products among export merchants and foreign representatives located in this country. The Sun Mfg. Company makes Showcases, Coffee Mills, Money Drawers, Woodenware specialties and Camp and Lawn Furniture.

MAKING GOOD IN BUSINESS

HINTS AND SUGGESTIONS FROM MANY SOURCES

Initiative and Leadership.

They asked me how I did it and I gave 'em the Scripture text,
"You keep your light so shining a little in front of the next!"
They copied all they could follow, but they could not copy my mind,
And I left them sweating and stealing a year and a half behind. —*Kipling.*

Taking Counsel.

A man of business should take care to consult occasionally with persons of a nature quite different from his own. To very few are given all the qualities requisite to form a good man of business. Thus a man may have the sternness and the fixedness of purpose so necessary in the conduct of affairs, yet these qualities prevent him, perhaps, from entering into the characters of those about him. He is likely to want tact. He will be unprepared for the extent of versatility and vacillation in other men. But these defects and oversights might be remedied by consulting with persons whom he knows to be possessed of the qualities supplementary to his own.

ARTHUR HELPS.

Get the Thing Done.

The tag ends of unfinished business are time consumers. They drag on. They multiply. They take ten minutes to do, if they are done to-day; two hours if they are done to-morrow. GET THE THING DONE. SYSTEM.

OWLS—AND MY BROTHER GEORGE.

The following article, written by Charles E. Churchill, is from Newspaperdom. It is quoted not alone because it has much in the way of hint and suggestion in it. In the brief story of George B. Churchill, Churchill Hardware Company, Galesburg, Ill., and his owls, we get at the very heart and essence of the advertising question as it is met by the retail merchant. And the answer is so simple!

My brother George says he's an advertising man by birth and education, and I guess he's pretty near right. It's not my intention to write a biography of my brother George, but rather to use him to point a moral and to adorn a tale.

The subject is TRADEMARKS.

Way back in the early eighties he opened a store with a considerable flourish of trumpets and a trademark.

A Trademark Worked Overtime.

Now, he didn't employ an artist to design and a lawyer to register a pretty combination of lines (these are bully good as far as they go); he just took an owl for his trademark, and he worked that owl overtime. He put it on his letterheads, his billheads, his checks, on his windows, on his wagons, on his signs. Never did he get up an advertisement without the owl—never a booklet or a leaflet.

If you will walk down the streets you will see this owl on billboards, and if you drive into the country you will see it on the farmers' fences.

It was a good trademark, but the real point is that during all these years and years he hasn't for one lone, solitary, adventurous moment gotten tired of that owl. It winks at you by night by means of skedoodle electric lights, and it stares at you from every side by day.

Sometimes it's a real live, horned owl in the window; sometimes it's the little dwarf prairie owl that shares its underground home with the prairie dog.

A Press Agent Yarn.

Once he got a Mexican taxidermist to make him an immense one from half a dozen owl skins and heralded its appearance in his store by a press agent yarn of its circumstantial killing down on Spoon River.

He got columns of write up on this Spoon River owl and the oldest inhabitants vied with each other in telling of owls as large or larger which they had seen at various times—in the past.

I wish I could show you some of his booklets—owls using every variety of household utensil. He tells me that he has had letters addressed to "The Owl Man, Illinois,"—no city, and mailed from

Half Across the Continent—

which have come to him with unerring accuracy and with reasonable promptness.

The mottoes which go with the owl are, "We Never Sleep," "Wide-awake Hardware Dealers," "Hustlers for Trade"—and these, too, have become engraved deep on the minds of Galesburgers by constant use.

He Never Got Tired

of his owls; he never thought his mottoes worn out. They were ever new, ever fresh, always in sight. Many a good trademark is buried by the man who should have perpetuated it. The "his-master's-voice" dog was slated for an early grave by the Victor people, and it was chance and an indomitable advertising agent which rescued him from the tomb and gave the world perhaps its best trademark.

Not Rules but Results.

I am reproducing a few of my brother George's ideas for newspaper ads. They are not works of art. They do not rigidly conform to the rules of ad-writing writers. You may improve on them if you will, but the melancholy fact remains that in a small town, starting at 13 years of age with nothing but a common school training and a hand-me-down suit, he has developed not only the biggest Hardware business in his city, but one of the big Hardware businesses of Illinois.

Past Year the Biggest.

This past year—you know the year, and how most people had settled back to wait for "better times"—his business actually increased and was the biggest in its history. The trademark has not been wholly to blame for his success—the boy's a "hustler for trade"—but the trademark has played its little part. I doubt if there is a man, woman or child in Knox County who does not know George B. Churchill—that "he never sleeps," that he's a "hustler for trade," that he's the "wideawake Hardware dealer"—and his owls.

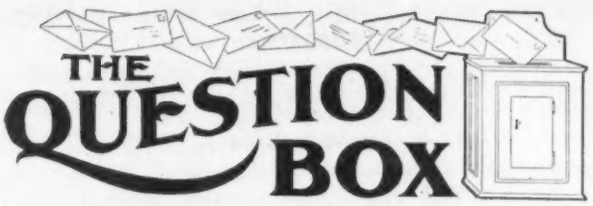
In fact, you will see his owls "transferred" on most of the windows and many of the best mahogany pieces of furniture in Knox County, because he sent "transfer" postals to all the school children "with instructions," and the mothers were "mad" at first when they saw the "we never sleep" owls on the parlor doors. But it was the same everywhere and became the town joke and the county advertisement.

IT'S KEEPING EVERLASTINGLY AT IT THAT BRINGS SUCCESS.

IT'S THE EVERLASTING ADVERTISING.

IT'S THE EVERLASTING USE OF THE MOTTO.

IT'S THE EVERLASTING TRADEMARK.



This department is open for the discussion of questions which arise in the practical conduct of the Hardware business. Our readers are invited to contribute, submitting inquiries or answering questions.

Correspondents are expected to give their names and addresses, but in order to encourage frank expressions of opinion the advices of our correspondents will be treated in confidence, names and addresses not being published.

For convenience Questions or Answers should be addressed to

The Iron Age Question Box, 14-16 Park Place, New York.

Turning Stock Three Times a Year?

QUESTION NO. 1. *Is it possible to make money in the Hardware business without turning stock three times in the course of a year? That is to say, if a stock inventories* $20,000 *at cost figures, can they make any money unless their annual sales are* $60,000?

Much interest has been taken in this question and the answers received, some of which are given below, present many different ideas and points of view. None of our correspondents, however, has brought out the fact that sales representing a triple turning of stock would foot up a sum considerably in excess of three times the inventory value, unless the goods were sold at cost. In other words, if a stock inventories at $20,000, annual sales of $60,000 would not, as suggested in the question, predicate a triple turning of stock. A $20,000 stock, turned three times, would probably show a volume of sales somewhere between $75,000 and $100,000.

Of particular interest is the statement of a far Western merchant who explains that in his country, because of the great distance from the market, he has to carry a larger stock than Eastern merchants and cannot expect to turn it over as often. There is compensation, however, in the fact that they enjoy larger profits. Thus it is pretty evident that no one rule can be laid down which will cover the whole country.

FROM A HOUSE IN MAINE.—Question No. 1 is a simple mathematical problem with figures varying in every individual example. This is the way to do it:

Find out what your expenses are. Face them squarely: Rent, interest on capital, personal salary, clerks' salary, cartage, advertising, insurance, telephone, heat, light, postage, printing, stationery, wrapping paper, &c., bad debts, dead stock, repairs. Put them down and add them up. Figure what your gross sales will be, if you turn stock, say, two and one-half times. What per cent. of these sales are your expenses? The answer is the average per cent. of gross profit you must get on your sales before you begin to make money.

An Example in Mathematics.

If your expenses are at the minimum and you are not making money, you must do one of two things: either turn your stock oftener—that is, do more business, or else increase the margin on what you do sell.

FROM A NEBRASKA MERCHANT.—In a well managed store where the proprietor or proprietors go in for work, a business can make money when turning stock two and a half times a year under average surroundings. There is too big a difference in firms—that is, in the head or management—to make this apply in all cases.

The Personal Equation.

FROM A NEW YORK STATE MERCHANT.—It would depend to some extent upon the business qualifications of the proprietor, the village, town or city in which the business is to be carried on, the location of the store and the class of goods handled. Suppose the business is conducted under the most favorable conditions as to expense and competition, with a general stock of Hardware, Sporting Goods, Stoves, Tinware, Housefurnishings, Paints, Oils and Window Glass. The expense of doing business placed at 25 per cent. of the sales is a conservative figure and probably too low to cover rent, heat, insurance, salaries, including that of the proprietor, bad debts and all items of expense incident to the business. Twenty-five per cent. of the gross sales can possibly be set down as profit which may be larger than can be actually realized in business under present conditions of trade. On the assumption that the stock is turned three times a year, which may be regarded as doing an average business, the expenses would equal the profits, and in dull times there seems to be no way of increasing profits, turning the stock more frequently or decreasing expenses. So there would be no way for the proprietor to accumulate a surplus.

Expenses Equal Gross Profits.

FROM A NEW JERSEY HOUSE.—A man can make money in the Hardware business without turning his stock three times. Much as we would like to do it, it has been impossible for us to reach the three times. We run a little over two. Of course a man could make more money if his sales were larger, but it all depends on what he is satisfied with. We keep our expenses as low as possible, and this helps out very materially. We doubt if very many retail merchants in the Hardware business reach the three times.

Cannot Reach Three Times.

FROM A HOUSE IN COLORADO.—In the West, owing to our long distance from market, and the consequent long time required to get goods from the source of supply, and owing further to the fact that the local freight rate is so much in excess of the carload rates, we are practically forced to carry much larger stocks in proportion to the volume of business done than dealers in the East or Middle West, who are near the source of supply. On the other hand, as an offset to the above disadvantage, we of the West get better profits than do the Eastern dealers. The answer to the question will certainly vary according to the location of the dealer. After 15 years of experience in a retail Hardware business in Colorado we do not hesitate to say that money can be made in turning a stock less than three times. In fact, we have been able two or three years to show a reasonable profit when we turned our stock less than two and one-half times.

Larger Profits in the West

FROM A PENNSYLVANIA MERCHANT.—The difficulty comes in deciding what a "profit" means. Some would figure interest on investment, personal services, &c.; some would not. We found that with a $7000 or $8000 stock we could turn it three times, making a nice profit, but of late we have increased stock to about $15,000 without being able to make three turnovers. Our expenses are much the same as with the smaller stock, so we figure that all above what we were formerly doing, less 6 per cent. on extra investment, is that much more profit that we might as well have, and consider it good business. We also find, by having larger stock, that we get considerable business that would otherwise go somewhere else.

What a Profit Means.

Co-operative Buying.

QUESTION NO. 2. *Can organization for co-operative buying be advantageously resorted to by merchants to enable them to meet competition of catalogue houses?*

This question recognizes the fact that one of the problems before the Hardware merchants of the country

is to get goods at as low a price as possible. They are obliged to compete with houses which purchase many of their goods at as low figures as are obtainable by the jobbers. If the retail merchants could buy as close as do their great competitors, it would give them a much better show in the hard battle they are called upon to wage. Co-operative buying has been suggested as a means of getting goods on a more favorable basis than is possible when the merchant purchases in small quantities for his own store. There are, however, serious practical difficulties in the way, especially where merchants are not residents of the same city. We submit the following replies from Hardware merchants in different sections of the country:

FROM A SOUTH DAKOTA MERCHANT: Co-operative buying would be fine if the man or men buying the goods would be honest by the firms they are buying for.

FROM A MASSACHUSETTS HOUSE: We think this could be done if the Hardware jobbers did not object to it so strenuously. As we understand the present condition, it is as follows: The National Association of Hardware Jobbers now oppose any syndicate buyer taking on for his client any dealer whom they do not classify strictly as a jobber and who is not a member of their association.

Objection of Jobbers.

FROM A MERCHANT IN OKLAHOMA: I think not, from the standopint of a country merchant. The retailer of necessity with limited sales must get a larger per cent. of profit than the catalogue house with unlimited sales which reduce the expense per cent. to a minimum. Co-operative buying would necessitate a great central department or headquarters, which I believe could not be maintained and operated or better systematized with less expense than many of our largest jobbers, and I doubt very much if such an institution could buy in larger quantities or at less price than the leading jobbers of the West. If the jobbers would divide their profit on many items with the retailer—say Cutlery, for instance—the average retailer would have no complaint about the catalogue house.

If Jobbers Divided Profit.

FROM A MISSOURI HARDWAREMAN: If by a system of co-operative buying the retail Hardware trade of the country can be placed in a position to successfully fight mail order and department store competition it is perhaps the best solution of the problem. I find that in the larger cities the department stores use Hardware for advertising purposes; in other words, make prices which are illegitimate. And that is the problem that affects the retail Hardwaremen in the larger cities much more than the catalogue house proposition.

Problem in the Larger Cities.

FROM A NEW YORK STATE HOUSE: The Hardware business in this part of the State is greatly overdone. My honest opinion is that a consolidation of some of the better Hardware firms in the different cities would be to the advantage of all parties concerned. I speak of a consolidation similar to the one made by ——— of ———. They have several stores, but they are all handled as separate institutions.

FROM A CONNECTICUT MERCHANT: I thoroughly believe that retail dealers can co-operate with one another in their buying and get the advantage of quantity prices. I do not believe it can be done as an organization, for it is in direct opposition to the jobbers' interest and would undoubtedly be provocative of trouble between the manufacturers and jobbers.

FROM A MARYLAND FIRM: Co-operative buying may be worked successfully in some localities, but we always handle our own buying exclusively. We buy in large quantities and naturally get close prices.

Manufacturers Selling White Lead to Consumers.

QUESTION NO. 3. *What is the opinion of the trade in regard to the policy of the White Lead manufacturers in selling to consumers so that the retailer's profit has been whittled down to almost nothing?*

The merchant asking this question refers to the Mixed Paint manufacturers as improving the opportunity to push their goods, explaining to the merchants that they can make a much larger profit on Mixed Paints than on the White Lead. The result is that the White Lead people see their output to the retailers steadily diminishing, and are beginning to sit up and take notice. It may be, however, that this is only a partial view of the subject, and that the White Lead manufacturers are not selling to consumers generally, our correspondents' experience being somewhat exceptional. We have letters from Pennsylvania, West Virginia, Massachusetts and New Hampshire merchants stating that they are not troubled in this way. The following answers reflect the views of other merchants in various sections of the country:

FROM A MASSACHUSETTS HOUSE.—This material is sold very close indeed, and we should consider that there might be some way of giving the dealer a better profit. It certainly is a line that most every dealer does not take much interest in, from the fact that it runs into money very fast and the profit is very small, and the class of trade that Lead is sold to is not in every instance first class. If there was a better margin of profit on genuine White Lead, we think there would be more of it sold. It is quite an opportunity for dealers to sell adulterated Lead, as it gives fair satisfaction and affords the dealer a much larger profit.

Profit Is Very Small.

FROM A MERCHANT IN NEW YORK STATE.—I have not heard of any White Lead having been sold to consumers by the White Lead manufacturers, but I would not be surprised if such should be the case, provided the concerns required over 500 lb. As competition increases some manufacturers are forced to adopt a plan by which they can sell their product. One of the first steps is to cut out traveling men or cut out the jobber, and the second step is to cut out the retailer. This is the case in many lines of business, and you will find that where competition as to price is very slight the scramble for business is just as urgent. Take, for instance, the manufacturers of Locks and Knobs, Builders' Hardware, &c., and see what efforts they will put forth to get the business of some one who may be about to construct a large building. They jump over the heads of jobbers and retailers. The manufacturers of steel frequently do the same. Should an individual require two or three cars of Sewer Pipe he can purchase it as low a price as any retailer in the country, provided his credit is good. In this way the merchant loses a large part of his trade, but much of the small trade remains, for it is not big enough to pay the manufacturer to look after it.

The Scramble for Business.

FROM A MASSACHUSETTS MERCHANT.—I have been in business 12 years, and we never got a new dollar for an old one out of White Lead, except on small trade. Whether this was occasioned by manufacturers selling or not I don't know. To-day in this city I don't believe the consumer is buying direct other than the combination brands, and that is mostly handled by the class that "skin the job."

Your Question Box is a good idea, for even if the Hardwareman does not correspond he gets the benefit of other views.

FROM A MARYLAND FIRM.—Our experience is that the dealers' profit on White Lead has been whittled down to

almost nothing. By their unwise policy of reaching consumers the manufacturers have simply been the means of our giving White Lead a back seat, and making us carry it as a stool pigeon. Because there has been no profit in it to us, we have been urging the trade to buy Ready Mixed Paint, which often has in its body a substitute for White Lead. If White Lead could be handled by us at a reasonable profit, we would sell it, and sell very much more and not sell any substitutes. This would make it better for the manufacturers of White Lead, and better for the consumer. We would like to see the White Lead manufacturers change their policy and confine the sale strictly to dealers, and have a fixed price that the dealer is to sell at with a margin of 15 to 20 per cent., and in larger quantities perhaps 10 per cent. net.

Back Seat for White Lead.

FROM A VERMONT FIRM.—The retailer tries to influence the consumer to use Mixed Paints, for the profit on White Lead is very small. When the Lead manufacturer protects the dealer on White Lead then business will increase.

FROM A MASSACHUSETTS HOUSE.—We have not come in contact with this condition. The White Lead people do sell to consumers in this vicinity, but while their customers are consumers they are also to a certain extent dealers carrying a stock of Lead, Paint and Varnishes. We do not believe the very small margin which is obtained by the retail dealers on Lead is the fault of the manufacturers.

Not the Maker's Fault.

FROM A NEW JERSEY HOUSE.—We will knock them out and cut them out wherever we can, and push ready prepared Paints all the harder. We believe that the latter, when they are strictly pure, are better goods, being made according to exact formulas and machine mixed.

FROM AN INDIANA MERCHANT.—A retail dealer has better protection from the jobber than from the manufacturer. There is no justice to jobbers for manufacturers to load them up with White Lead, and then call on the retail trade and load them up. That does not give the jobbers any encouragement to push their line.

FROM A PENNSYLVANIA FIRM.—We have not known of White Lead manufacturers selling to our trade, although the selling price is so low that there is no money in the sale of Lead alone. But in several instances Mixed Paint manufacturers have sold our trade a few gallons of Paint, claiming that they were going to sell in the town to some one. It is unreasonable for them to think that three or four merchants can handle every line that is made, but we do not know how we can convince them that they are doing wrong.

FROM A NEW JERSEY FIRM.—Your correspondent has touched on a sore spot. Every dealer in Paints has bitterly complained of this state of affairs, but the Lead manufacturers take the stand that competition compels them to treat the dealer in this manner, and that they will force the dealer to carry their goods by means of widespread publicity. The advertisements that appear in almost all of the popular periodicals attest the enormous amount of money they are spending on this campaign of education (?) Their terms to any one, dealer or consumer, are on the basis of 100 lb. kegs in wood: In lots of less than 500 lb., $7.25 per hundredweight; in lots of more than 500 lb., $6.75 per hundredweight.

How It Works Out.

This forces the dealer to sell at their published price of $7.25, and if he sells within a calendar year 12 tons of their product they will allow him a discount of 25 cents per 100 lb. In addition to these prices the dealer has to pay both freight and cartage to his store, and as your correspondent says the profit is small, roughly figured about 5 per cent., out of which he must get his profit, losses and his delivery costs. As the average cost of doing a retail business is seldom less than 15 per cent., his profits can be best expressed with a minus sign prefixed.

The result is that every dealer, almost without exception, is pushing night and day to sell his Mixed Paints. Aided by the Paint manufacturers he is flooding his trade with literature showing their great advantages, and even the master painter, who a few years ago would not touch Mixed Paint, is now using it freely. Columns could be printed on its advantages and talking points, but the result is that more and more houses each year are painted with Mixed Paints, and the sale of White Lead is not increasing. Why should it? Any dealer is worse than foolish who will not improve the opportunity to turn every customer from White Lead that he possibly can. Why should he sell an article without profit, in fact at a loss, when he can sell a profitable article, which he knows from his own experience will at least suit the customer as well?

Mixed Paints the Only Recourse.

Questions Referred to Our Readers.

Departments in Hardware Stores.

QUESTION NO. 4. FROM PENNSYLVANIA: *Have any of your subscribers had any experience in departmentizing their stocks? That is, knowing just what their sales of various departments are, charging up such departments the cost and their proportion of the expenses of doing business. If so, I should be glad to know how it has worked out.*

Omissions in Bills of Lading.

QUESTION NO. 5. FROM FLORIDA: *Why will manufacturers and jobbers shipping goods fail to put weight and rate of freight in the bills of lading?*

In sending in the above question our correspondent remarks that this failure upon the part of the jobbers of goods has cost him many dollars and cents, and given him untold trouble and annoyance. He makes the point that if either weight or rate is left out of the bill of lading it is practically worthless.

Uniform Size of Invoices, Etc.

QUESTION NO. 6. FROM TEXAS: *Would it not be well if the Hardware people should adopt the plan of having all invoices, statements and letters of a uniform width, as this would be much better for filing?*

Merchant's Advertising.

QUESTION NO. 7. FROM GEORGIA: *What percentage should the merchant's advertising, newspaper and otherwise, bear to his total gross sales for the year?*

Advantage of Cash Discount.

QUESTION NO. 8. FROM NEW YORK: *If a merchant's purchases in the course of a year amount to* $20,000, *what actual saving is effected by taking advantage of the discount of* 2 *per cent. for cash in* 10 *days?*

Changes and Failures in Business.

QUESTION NO. 9. FROM NEBRASKA: *Why are there so many changes and failures in the Hardware business in the West?*

Special Brands.

QUESTION NO. 10. FROM PENNSYLVANIA: *What is the experience of the trade in selling special brand goods? In other words, to put it plainly, how many retail merchants if they had the past three years to do over again would put in stock special brands of Hardware, Edge Tools, &c., as sold by jobbers to-day?*

A new Hardware store has been started at Freeport, Ill., by Jenkin Brothers, who will handle Hardware, Stoves, Furnaces, Iron Pipe and Fittings. They will also run a tin and sheet iron shop in connection with the store.

New York and New Jersey Hardware and Iron Association.

THE tenth annual banquet of the New York and New Jersey Hardware and Iron Association, marking a decade of successful endeavor and community of interest in this field, was held at the Hotel Knickerbocker, New York City, Saturday evening, April 3. Covers were laid for 40, and after an hour spent socially in the adjoining reception room, where members availed themselves of the opportunity to greet each other as well as guests identified with prominent manufacturers in this line of trade, the company was ushered into the banquet room. The menu of ten courses was interspersed with both vocal and instrumental music and some good stories inimitably told, the talent being of the professional order.

Henry Bodevin, N. Langler & Sons, president during the past year, acted efficiently as toastmaster, and cordially welcomed the members and guests. William E. Kleine, a charter member and past president interestingly sketched the history of the 10 years' existence of the association. There is much satisfaction among the members with the loyalty shown by each, and it is believed that the organization has abundantly justified its existence in material benefits and the general betterment.

The membership includes most of the principal houses in the line in the territory covered, while others, not members, are in sympathy with its purposes and govern their practice largely in accordance with the association aims. The active membership includes J. C. Bonn, H. F. Gundrum Company, G. H. Kennedy & Co., William E. Kleine & Co., and E. C. Striffler, New York; N. Langler & Sons, Joseph Ruppert, Ruwe Bros., and C. H. Tiebout & Sons, Brooklyn; W. T. Crane Carriage Hardware Company and J. G. Merkel Company, Newark; George J. Hollereith & Co., Jersey City, and Doremus & Snyder and Quackenbush & Son, Paterson.

The officers for the ensuing year are A. S. Van Sant, president; J. T. Doremus, vice-president; Henry Bodevin, treasurer; E. C. Striffler, secretary, and Charles A. Hauck, corresponding secretary.

Among the guests present at the banquet were Frank Horr, American Screw Company; S. Staines, Carnegie Steel Company; L. B. Morris, Cambria Steel Company; J. D. Keith, Phœnix Horse Shoe Company; R. B. M. Cook and W. S. Comly, Russell, Burdsall & Ward Bolt & Nut Company; William Lauer, Lambertville Spoke Mfg. Company; F. W. Wurster, Jr., F. W. Wurster & Co.; E. R. Merrill, Merrill Spring Company; E. S. Hilton and J. E. McCarthey, Morgan & Wright; W. J. Kent, Revere Rubber Company; F. S. Titchener and F. M. Bostwick, Union Forging Company; E. S. Darlington, Hoopes Bros. & Darlington; J. M. Delany, Delany Spring Company; H. C. Lindemuth, Wilmington Wheel Company; A. O. Chase, King Fifth Wheel Company; I. S. Ventres, Union Nut & Bolt Company; M. Essig and E. Rudolph.

A NEW spring catalogue of 310 pages has just been issued by the Norvell-Shapleigh Hardware Company, St. Louis, Mo. The book covers in a complete manner Fishing Tackle, Baseball Goods, Rifles, Cutlery, Garden Tools, Refrigerators and other spring and summer merchandise. It is profusely illustrated, the descriptions throughout are clear and to the point and all goods are priced. The book is bound in paper covers, green linen finish, in imitation of the Diamond Edge Soil Proof paper adopted by the company on their display boxes. The book will be sent free, postpaid, to any Hardware merchant on application.

ANNOUNCEMENT is made that the business heretofore conducted by W. Loaiza & Co., and the New York & Mexico Commercial Company will hereafter be carried on by W. Loaiza & Co. of New York, at 12 Broadway. The company is a New York corporation. Its officers are as follows: Manual Ysern, president and treasurer; Fernando Montijo, vice-president; Alberto Leon, Jr., second vice-president and secretary.

CONTENTS.

	PAGE
A Variable Speed Air Controlled Transmission. Illustrated	1115
Canada's Trade Relations with France and Germany	1117
Identifying Smiths	1117
Armington Electric Hoists. Illustrated	1118
The Eclipse Concrete Mixer. Illustrated	1119
Preliminary Tests from the Open Hearth Steel Furnace	1120
The Carrier Air Conditioning Process. Illustrated	1122
The Automatic Equipment Rail Joint. Illustrated	1123
Reversing Mechanism for Regenerative Furnaces. Illus.	1124
The Conservation of Natural Resources	1125
Keystone Gas Producers. Illustrated	1126
A Pennsylvania Tax Commission	1127
Electric Welding of Steel Railroad Rails	1127
The Hanna Portable Mold Drier. Illustrated	1128
A Whiting Electric Railroad Repair Shop Crane. Illus.	1129
The Coming Mechanical Engineers' Convention	1129
The Sloss-Sheffield Steel & Iron Company	1130
The Heavy Increase in General Imports	1130
The Alabama Consolidated Coal & Iron Company	1131
The Ryerson Rotary Squaring Shear. Illustrated	1131
The Wing-Horton Mailing Machine. Illustrated	1132
Customs Decisions	1133
New Publications	1134
The Underwood Portable Universal Boring, Turning and Facing Machine. Illustrated	1134
A Well-Tubing Pulling Machine	1135
Dominion Steel and Coal Companies' Agreement	1135
February Iron and Steel Exports and Imports	1135
Editorial:	
Iron Market Tendencies	1136
Machinery Salesmen's Lack of Authority in Closing a Deal	1136
The Drawback Provision of the Payne Tariff Bill	1137
The Eastern Steel Company in the Moa Ore District	1138
Labor Notes	1138
Imprisonment for Intimidating Nonunion Men	1138
The Tariff Discussion in the House	1139
The Milliken Brothers Receivership	1141
Activity in Factory Sites at Indiana Harbor	1141
Personal	1142
The Bethlehem Steel Corporation's Report	1142
News of the Works:	
Iron and Steel	1143
General Machinery	1143
Foundries	1143
Power Plant Equipment	1143
Bridges and Buildings	1143
Fires	1143
Hardware	1144
Miscellaneous	1144
Obituary	1144
Pig Iron Production. Illustrated	1145
The Iron and Metal Trades:	
A Comparison of Prices	1147
Prices of Finished Iron and Steel f.o.b. Pittsburgh	1147
Chicago	1148
Cleveland	1149
Pittsburgh	1150
Buffalo	1151
Philadelphia	1152
St. Louis	1152
Cincinnati	1153
Birmingham	1153
Metal Market	1154
New York	1154
Iron and Industrial Stocks	1155
Seattle Industrial Notes	1156
The Australian Iron and Steel Bounty	1156
The Gary Open Hearth Gas Producer Plant	1156
Dunbar Furnace Output	1156
Trade Publications	1157
The Machinery Trade:	
New York Machinery Market	1158
Philadelphia Machinery Market	1159
Cleveland Machinery Market	1159
Cincinnati Machinery Market	1160
Chicago Machinery Market	1160
Milwaukee Machinery Market	1161
New England Machinery Market	1161
Government Purchases	1162
Hardware:	
Condition of Trade	1163
Notes on Prices	1164
Trade Items	1166
A Unique Window Display. Illustrated	1166
Price-Lists, Circulars, &c	1167
The Pittsburgh Conventions	1167
Requests for Catalogues, &c	1167
Making Good in Business. Illustrated	1168
The Question Box	1169
New York and New Jersey Hardware and Iron Association	1172
Making Ready for Another Parcel Post Campaign	1173
Wynn's Wire Cloth Cabinet. Illustrated	1174
Lalance & Grosjean Mfg. Company's Offices and Sample Room. Illustrated	1175
Hart Punching Bag Swivel. Illustrated	1175
Mrs. Malin's Sink Strainer. Illustrated	1176
New Acme Hay Tools	1176
Swank's Metal Marking Ink	1176
Feltoid Casters. Illustrated	1176
Pond's Handy Weeder. Illustrated	1176
Goulds Power Working Head. Illustrated	1177
Perfection Tilting and Revolving Clothes Reel	1177
Underground Gasoline Tank. Illustrated	1177
Holwick Power Coffee Mill. Illustrated	1177
Telephone Booth Fan. Illustrated	1178
Stearns Ball Bearing Lawn Trimmer. Illustrated	1178
Payson Casement Adjuster. Illustrated	1178
Rollis Tool Sets. Illustrated	1178
The Taylor Double End Lathe Tool. Illustrated	1179
New Hand Saws	1179
Current Hardware Prices	1180

Making Ready for Another Parcel Post Campaign.

Rural Parcel Post Provided in Three Bills—General Parcel Post the Aim of Another—No Less Than Five Bills for Increasing Rural Carriers' Compensation—Consolidation of Third and Fourth Class Matter—One Cent Postage Measure Introduced "by Request."

FROM OUR SPECIAL CORRESPONDENT.

WASHINGTON, April 6, 1909.—The force of the time-honored declaration that eternal vigilance is the price of liberty will be fully appreciated by the readers of *The Iron Age* when they learn that thus early in the special session, presumably to be devoted solely to the consideration of the tariff, there have been introduced three bills providing for a rural parcel post, one proposing a general parcel post, one authorizing the consolidation of third and fourth class mail matter at one-half the present merchandise rate, five increasing the compensation of rural letter carriers and a single measure reducing postage to 1 cent per ounce.

Seven Months' Missionary Work.

These 11 bills have been referred to the House Committee on Post Office and Post Roads yet to be appointed. While it may be assumed that there will be no action in committee or on the floor upon any of these measures at the current special session, their introduction, reference and printing afford the advocates of the schemes embodied therein an opportunity to do a vast amount of missionary work which may reasonably be expected to bear fruit at the regular session beginning next December.

It should be remembered that the introduction of a bill in either house means the printing at public expense of 2000 copies, which, together with any additional copies that may be printed at private expense, are eligible to transmission through the mails under the frank of any Senator or Representative without payment of postage. Several of the bills referred to have already been reprinted in large editions, and, under the franks of the introducers, are being scattered broadcast through the country for the purpose of developing the sentiment which is counted upon to produce results next winter.

The Lafean Experimental Parcel Post Bill.

The first of the rural parcel post bills to be presented in the new Congress is that drafted by Representative Lafean of Pennsylvania, along lines suggested by the Postmaster-General, providing for an experimental system to be confined to rural delivery routes operating from post offices located in not to exceed four counties in the United States. When this bill was originally introduced it provided that the experiments should be made in York County, Pa., but subsequently at the suggestion of the Post Office Department, Mr. Lafean enlarged the provisions of the bill to include four counties to be selected "under such regulations as the Postmaster-General may deem advisable."

Another important modification has been made in this bill since it was first introduced. Originally it stipulated that the rates of postage should be those of the so-called Bristow-Meyer measure, namely, five cents per pound on the first pound and two cents on each additional pound up to a limit of 11 lb., the rate on which would be 25 cents. In the revised bill, however, Mr. Lafean provides that the rates of postage, as well as the weight limits, shall be such as the Postmaster-General in his wisdom may establish, thus making it possible, should Congress authorize the experiment, to transport merchandise in any quantity at merely nominal rates.

The bill as reintroduced also contains the quixotic restriction framed by the Postmaster-General to exclude the business of mail order houses, which provides that

> parcels,, packages or articles of merchandise, at the special rates which may be fixed, shall not be accepted from any person acting as the agent or representative of any person or company not a resident on such rural delivery routes, or in the villages or towns located thereon, or at the distributing post office from which such rural delivery routes emanate, and that only such parcels, packages or articles of merchandise be received for delivery at such special rates of postage as are offered by *bona fide* merchants or dealers whose regular places of business are on such rural delivery routes, in the villages or towns located thereon, or at the distributing post office from which such routes emanate, in the ordinary and regular course of business, or in their individual capacity by residents on such routes.

Parcel Post by Mr. Hobson.

The activity in the campaign for the establishment of a rural parcel post of Representative Hobson of Alabama, one of the younger members of the House, will be remembered by readers of this correspondence during the last session. Promptly at the beginning of the special session Mr. Hobson has come forward with a bill which he declares he will push with the utmost vigor as soon as the House Post Office Committee is appointed. It provides as follows:

> Be it enacted, &c., That the Postmaster-General be, and he is hereby, authorized and directed to conduct experiments in the delivery of packages of merchandise, the weight of which shall not exceed 11 lb., on rural free delivery routes, that he may designate, under such regulations and at such special rates of postage as he may prescribe: Provided, That the packages thus delivered shall originate on the routes on which they are delivered.

Mr. Hobson's measure will be recognized as crude and incomplete not only because the safeguards as suggested by the Postmaster-General to prevent the utilization of the service by the mail order houses are not provided for in detail, but also because, like the Lafean bill, no appropriation is made to pay the cost of the proposed experiment. It is understood to be Mr. Hobson's plan to offer his bill as an amendment to the next annual Post Office Appropriation bill, with the understanding that the cost of the experiment shall be defrayed from the general postal revenues.

Ten Cents for Carrying 25-lb. Peach Basket of Merchandise.

Perhaps the most extravagant rural parcel post project put forward at the special session is the bill which has just been introduced by Representative Henry of Connecticut, who is commonly regarded as the father of the parcel post idea in Congress. His bill proposes the creation of a parcel system on rural routes with the following schedule of charges and limitations:

> On parcels up to 1-24 cu. ft., or 1 x 6 x 12 in., and up to 1 lb. in weight, 1 cent; on larger parcels up to ½ cu. ft., or 6 x 12 in., and up to 11 lb. in weight, 5 cents; on larger parcels up to 1 cu. ft., or up to the dimensions of the ordinary suit case, a box 6 x 12 x 24 in., or of the ordinary peach basket, and up to 25 lb. in weight, 10 cents. No parcel shall be over 6 ft. in length, and in no case shall a carrier be obliged to transport a load of over 500 lb.

Mr. Henry stands sponser for the above bill with all its imperfections and absurdities, but he declines to assume responsibility for another measure introduced on the same day and indorsed "by request," proposing a rate of 8 cents per pound on general merchandise. Why Mr. Henry should strain at a gnat and swallow a camel can only be surmised, but it seems probable that his reason for withholding his indorsement of the comparatively conservative proposition for cutting the merchandise rate in two is that he wishes to emphasize his championship of the radical project which embraces the transportation of peach baskets of merchandise weighing 25 lb. for 10 cents.

Mr. Bennett's Parcel Post Bill.

The first member of the House to introduce a full fledged domestic parcel post bill is Representative Bennett of New York, who has put in a measure understood to have been drafted by the Postal Progress League. It contains the substance of the Hearst and Henry bills so vigorously agitated in the Fifty-ninth Congress, and as it will serve as the basis for the general campaign in the new Congress, the text is here set forth as follows:

> Be it enacted, &c., That the third and fourth classes of mail matter be, and are hereby, consolidated under the title of

"Merchandise," with a weight limit of 11 lb., with rates as follows:

On parcels up to 3 oz., 1 cent; over 3 oz. up to 6 oz., 2 cents; over 6 oz. up to 9 oz., 3 cents; over 9 oz. up to 12 oz., 4 cents; over 12 oz. up to 1 lb., 5 cents; for each additional pound or fraction thereof, 2 cents, making the rate on an 11-lb. parcel 25 cents. No parcel shall be more than 3½ ft. in length or occupy more than 2 cu. ft. of space.

Sec. 2. That this service shall cover all documents styled commercial papers by the Universal Postal Union, including "all instruments or documents written or drawn wholly or partly by hand, which have not the character of an actual and personal correspondence, such as papers of legal procedure, deeds of all kinds drawn up by public functionaries, waybills or bills of lading, invoices, the various documents of insurance companies, copies of or extracts from deeds under private signature, written on stamped or unstamped paper, scores or sheets of manuscript music, manuscript of books or of articles for publication in periodicals, forwarded separately, corrected tasks of pupils, excluding all comment on the work:" Provided, however, That such documents be so mailed as to admit of easy examination.

Sec. 3. That the service determined by this act shall include free delivery and collection, house to house, of all parcels handled by the Post Office Department, wherever a wagon or car collection and delivery service is now or may hereafter be established. Wherever there may be only a foot service the postman shall not be required to receive or deliver any parcel of greater weight than 5 lb.

In the absence of a collection and delivery service the rates of this act shall only apply to the service between post offices, but the notice of arrival of parcels shall in such cases be given to the addressees.

Sec. 4. That on all unregistered prepaid mail matter without declared value an indemnity up to $10 shall be paid by the Post Office Department for such actual loss or damage as may occur through the fault of the postal service, and this without extra charge. Certificates of posting shall be provided on demand.

On registered parcels of declared value and on which the fees for registration, insurance and postage have been duly prepaid, the Post Office Department shall pay the full value of any direct loss or damage that may occur through any fault of the postal service.

The fees for insurance and registration shall be as follows: For registration and insurance up to $25, 2 cents. No claim for compensation will be admitted if made more than one year after the parcel was posted.

Penny Postage.

In astonishing contrast to the parcel post bill above quoted is the simple measure which Mr. Bennett has also introduced "by request" providing for universal penny postage in the following terms:

Be it enacted, &c., That from and after January 1, 1910, the rates of letter postage shall be as follows: On all letters weighing 1 oz. or less the postage to be paid from any place or point in the United States to any other place or point therein, and on all drop letters, shall be 1 cent, and for each additional ounce or fraction thereof the postage shall be 1 cent additional.

It goes without saying that if Congress should authorize a parcel post of any kind the present generation would never enjoy the benefits of penny postage, but inasmuch as Mr. Bennett does not hold himself responsible for either of the two bills above referred to he does not regard his position as inconsistent.

Measures for Increasing Rural Carriers' Pay.

The tremendous pressure brought to bear upon Congress by the rural free delivery carriers to increase their compensation is reflected in the bills already introduced in the House. Representative Adamson of Georgia proposes that the compensation of rural carriers shall be increased from $900 per annum to $90 per month for routes up to 24 miles in length, with an increase of $3 per month per mile, or major fraction thereof, for routes of greater length.

He further provides that the Postmaster-General shall expand short routes and curtail long ones so as to equalize the travel of carriers as nearly as possible, but that no route shall be discontinued nor the service thereon reduced to less than six trips per week without the approval of the Representative in Congress from the district in which the initial office is situated.

Representative Humphreys of Mississippi has introduced a bill providing that in addition to the compensation now allowed by law the further sum of $250 per annum be allowed each rural carrier "for the purchase and maintenance of necessary horses, wagons and equipment," while Representative Bates of Pennsylvania proposes a substantial allowance in addition to salaries now provided by law of $150 per annum.

Representative Gronna of North Dakota has introduced the most comprehensive of all the pending measures dealing with the compensation of rural carriers. He proposes that on and after July 1, 1910, the compensation of carriers working six days each week on routes of 24 or more miles shall be $1200 per annum. The Postmaster-General is authorized to fix the salaries of carriers on shorter routes, provided that in no case shall the reduction be more than $45 for every mile less than the standard route of 24 miles.

Rural Service Would Cost More Than $50,000,000 Annually.

This bill, which it will be seen proposes an increase of one-third in the salaries of carriers as authorized by existing law, appropriates the sum of $12,000,000 to supplement the amount carried by the annual post office appropriation bill. If Mr. Gronna's bill should become a law the rural service would cost more than $50,000,000 per annum, of which more than three-fourths would be saddled upon tax payers receiving absolutely no benefit therefrom.

Wynn's Wire Cloth Cabinet.

The Roller Cabinet Works, Sterling, Ill., is putting on the market Wynn's patent roller cabinet, for accommodating wire cloth, as shown in the accompanying illustration. Not only is the top designed for measuring and cutting wire cloth, but it is also especially ruled for cutting glass. The cabinet is 32 in. high, 70 in. long and 32 in. wide. It is made of thoroughly seasoned solid red oak, with paneled ends, and is shipped crated as a display counter. It weighs 200 lb. The cabinet accommodates 18 ordinary rolls, which are displayed on the front, and also has four end pockets, 60 in. deep, for accommodating long rolls. Card frames are provided for marking the size of cloth which each pocket contains. All the pockets are 7 in. square. There is a drawer for tacks, shears, &c., which pulls out from either side, and the cabinet may be used from front or rear. Two revolving rollers are arranged to hold a roll of wire cloth to be cut and keep it from loosening while measuring. The cabinet is referred to as an ornamental and durable fixture which is not likely to get out of order and is useful and convenient in a retail store.

Wynn's Wire Cloth Cabinet.

THE J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass., is distributing a new edition of its abridged catalogue and part envelopes. The catalogue is a 32-page booklet, embodying illustrations and descriptions of all the company's staple numbers. The part envelopes are made of durable manila stock and are for use in sending out parts of Guns and other small articles carried in stock. The company will furnish a quantity of the catalogues and envelopes imprinted to any Hardware or Sporting Goods merchant upon application, providing the latter bears the cost of delivery.

LALANCE & GROSJEAN MFG. COMPANY'S OFFICES AND SAMPLE ROOM.

THE Lalance & Grosjean Mfg. Company, 299 Broadway, New York, has recently installed a series of sample display tables made especially for its use and according to designs originated by officials of the company. They are adapted to the effective display of many kinds of goods, whether staple articles such as fine Hardware and allied lines, or Clocks, Novelties, Jewelry, Silver, China, Glassware, Statuary, Bronzes, &c., because of the unobstructed vision of the three display levels. The seven tables here used are uniform in size, but the dimensions may be modified to meet other requirements. In this instance the extreme measurements are 9 x 3 x 3 ft. The entire woodwork is fine African mahogany, polished, the bottom of which is of the same material, but both table top and upper shelf are each ⅜ in. polished plate glass, the larger one set flush with the wood surface with a 1-in. wood margin on the four sides. The smaller top shelf is 1½ x 8 ft., and supported by three polished bronze pillars in keeping with the character of the table. The six plain tapered legs have special casters which may be accurately adjusted to the slightest floor inequalities by turning a portion of the caster on a threaded stem. As the upper shelves are transparent, the view of articles arranged on the three surfaces is unobstructed. On the tables are arranged the various lines of kitchen and household utensils manufactured by the company, including Agate Nickel-Steel Ware, El-an-ge, White and White and Robin Egg Blue, while other groups, such as Galvanized and Tinned Ware asd Enameled Steel Sinks, are displayed to the best advantage nearby. The entire floor is about 50 x 125 ft., with offices for the executives on the Broadway end, together with a room for directors' meetings, while offices for the cashier's, billing and cost departments are at the other end. On the left of the room, as shown in Fig. 2, the remainder of the office force is provided for, with lavatories, telephone booth and other accessories. The desks, chairs, tables and other furniture, together with the plate glass partitions, so far as wood is used, are also of African mahogany, and the front offices carpeted with green Wilton. There is a fine natural light from three sides and artificial illumination by electricity. Where wood partitions are not used, the space is divided by heavy brass railings. Adjoining the sample tables is a row of desks for salesmen.

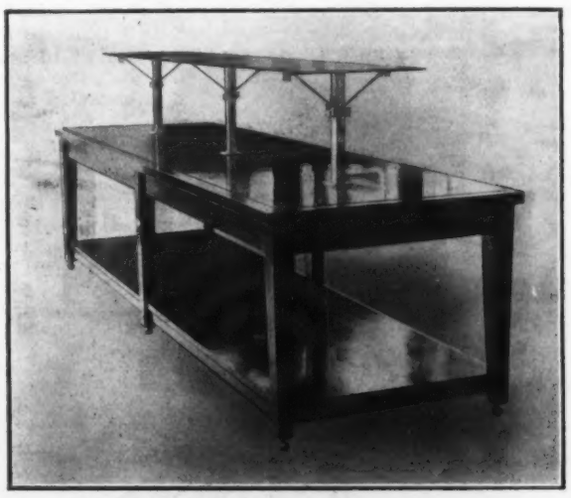


Fig. 1.—Mahogany and Plate Glass Sample Table.

Fig. 2.—Partial View of Sample Room and Offices.

Hart Punching Bag Swivel.

Hart & Hofmeister, 358 Lilly avenue, West Liberty, Pittsburgh, Pa., Lee & Underhill, 98 Chambers street, New York, Eastern distributors, have introduced the Hart punching bag swivel, here shown. The advantage of this swivel is the facility and ease with which the rope length may be changed for lengthening, shortening or renewing. The base plate may be attached permanently, with four screws, to ceiling, side wall or floor, to obtain the different movements of back or leg muscles, according to the wish of the individual. Into this plate is screwed a 4-in. stem, in the farthest end of which is a lead ball, through the center of which is a hole for the cord. The cord—usually ¼-in. braided sash cord—is led through a suitable opening, at right angles with which there is a screw to hold rigidly the cord, thus obviating the necessity for knotting it, with the consequent disadvantages in connection with wear and replacement. With one or more extra plates the bag may be shifted for different movements, if desired, with little trouble or delay. It is especially suitable for pear shaped bags and for floor use about 1 in. play is best.

Hart Punching Bag Swivel.

The Hill Hardware & Paint Company, Nashua, N. H., recently incorporated with a capital of $5000, has purchased the stock and fixtures of the F. O. Ray Company, which will be removed to a new store. The officers of the new company are as follows: Leon E. Winn, president; Edwin E. Smith, treasurer, and Willis G. Hill, secretary. The lines handled include Hardware, Tools, Mill Supplies, Paints, Oils, Varnishes, Glass and Roofing.

Mrs. Malin's Sink Strainer.

The Malin & Company, Cleveland, Ohio, is putting on the market Mrs. Malin's sink strainer, here illustrated. It is described as of unusually strong and durable construction, being made entirely of stamped steel, firmly riveted and virtually consisting of only three pieces. The bottom and rim, which have the most wear and tear, are three gauges heavier than the body. Extra support is provided by a continuous heavy wire all around the top, which keeps the body in shape. This wire projects above the flange and prevents denting when knocking against garbage cans, &c. The flange continues around the angle, leaving no opening for the sink to be soiled. Joints are said to be strictly tight and easily kept clean and bright. It is said that it will not tip if used as a colander, but stands firmly on its stamped steel base, Fig. 1. The strainers are finished in extra heavy hard light blue enamel which, it is claimed, will not crack or rub off. They are packed one dozen in a strawboard carton; one gross in a wood case. The shipping dimensions of the case are 41 x 20 x 20 in., and it weighs 185 lb.

Fig. 1.—Mrs. Malin's Sink Strainer.

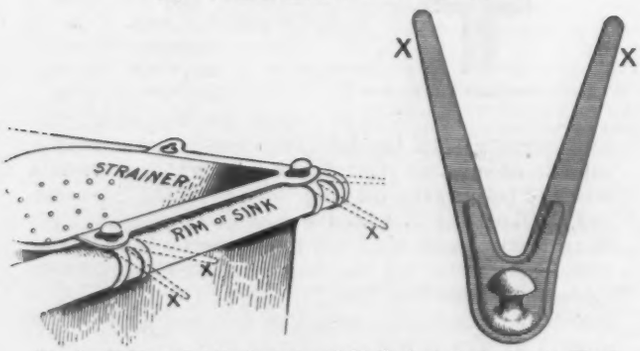


Fig. 2.—V-Shaped Attachment and Method of Fastening to Wood or Metal Sinks, Flat or Roll Rim.

New Acme Hay Tools.

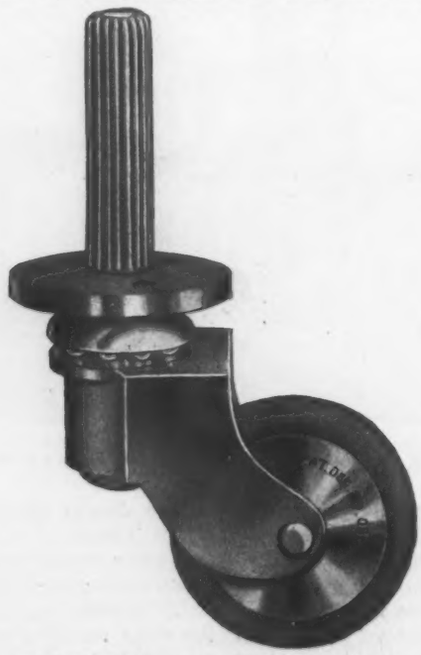
The Whitman & Barnes Mfg. Company, Chicago, is putting on the market this year a new line of hay tools called the New Acme. They are said to have many points of merit which are enumerated in the company's illustrated catalogue No. 69, giving extended descriptions of the goods. Attention is called to the fact that the line is complete, consisting of fork and sling carriers, both for wood and steel track, and also fork carriers for use on rod or cable. The No. 300 and No. 400 carriers may be operated on steel or wood track, and are for use with iron cable in place of rope. They are especially designed to meet the demand in the far West. Other features of the line are the New Acme steel track and a hanger hook.

Swank's Metal Marking Ink.

A. H. Swank, Fremont, Ohio, is placing on the market Swank's metal marking ink, a new liquid marking ink containing neither acid nor water, for writing or marking on every metal; also glass, china, celluloid, rubber, &c. It will not rust or corrode and can be readily removed with alcohol but withstands hot water. With this liquid merchants can mark their stock conveniently and satisfactorily. A two ounce sample bottle will be supplied for 50 cents.

Feltoid Casters.

The Burns & Bassick Company, Bridgeport, Conn., is manufacturing the patented Feltoid English ball bearing plate caster here illustrated. The main feature of this caster is the wheel, which is described by the company as made from pure felt, rendered firm and durable by a special process, producing a smooth, velvety surface capable of sustaining massive furniture and moving it about without injury to floors. This style of caster is made with cast brass horns and plates and ball bearings in Nos. 2 and 3, wheel diameters of which are 1 3-16 and 1 5-16 in., the illustration showing the No. 3 actual size. The company likewise manufactures a large line of casters of other styles fitted with the Feltoid wheels.



Feltoid English Ball Bearing Plate Caster.

Pond's Handy Weeder.

The combination lawn weeder and garden trowel here illustrated is being put on the market by the L. C. Pond Company, Los Angeles, Cal. The tool is especially designed for clearing lawns of all kinds of weeds, such as dandelion, crab cross, Bermuda grass, &c. For small weeds the fork end is used as in Fig. 2, the shoe acting as a fulcrum, and for weeds too large to be cut out with the fork a blade is provided and is used as indicated in Fig. 3. The manufacturer states that the weeder is effective for general garden purposes, especially when it is necessary to work close to young plants. It is a well finished article, having a polished turned handle, and is said to be attractive for counter display. It is made in three sizes, No. 1, which has a blade 1¼ x 8 in long; No. 2, 1¾ x 8 in., and No. 3, 2¾ x 10 in.

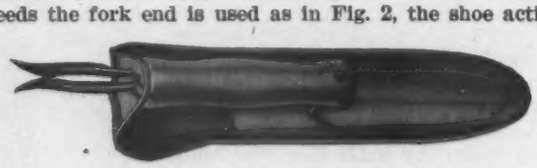


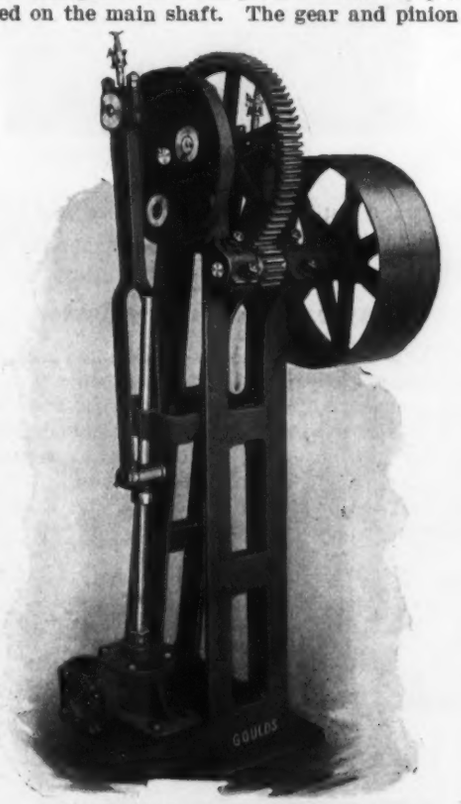
Fig. 1.—Pond's Handy Weeder.

Fig. 2.—Using the Fork.

Fig. 3.—Using the Blade.

Goulds Power Working Head.

With a view of meeting the demand for a low priced, compact but effective power working head for operating single action deep well cylinders in wells from 50 to 175 ft. deep, the Goulds Mfg. Company, Seneca Falls, N. Y., has recently placed on the market a new type which is said to contain many good features not ordinarily found in low priced machines. In construction it is very strong and substantial owing to the entire frame being cast in one piece. The gear and crank plate are securely pressed and keyed on the main shaft. The gear and pinion are



The Goulds Power Working Head.

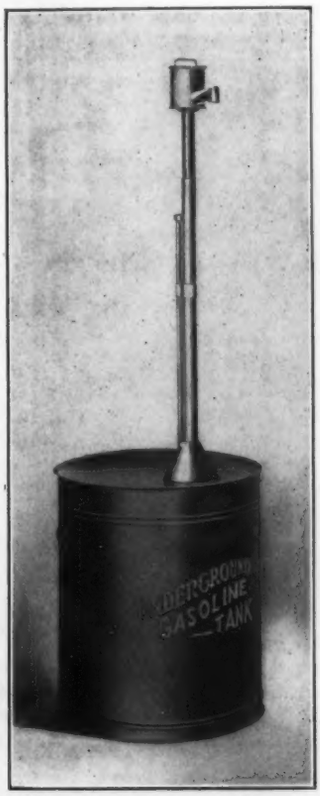
of charcoal iron, machine cut from the solid and the main and piston shaft run in large babbitted bearings. The well cover is placed in the base. It is arranged in such a manner that by taking out the bolts which secure it to the frame and disconnecting the well rod, the entire working head can be moved back away from the well without disconnecting the pipe. The crank plate provides for an adjustable stroke by changing the crank pin. The pitman is malleable iron and the crosshead and guide rods are of forged steel. The polished well rod operates through a brass gland. All bearings are provided with oil cups and are adjustable. The working head can be supplied with or without an air chamber.

Perfection Tilting and Revolving Clothes Reel.

J. G. Madland, Port Angeles, Wash., is putting on the market a clothes reel which is said to embody many desirable features. Although it holds 225 ft. of line, it occupies only 18 ft. of space and is referred to as presenting a neat appearance in the yard. It is not necessary to use steps, &c., in order to reach the upper lines, since by turning a lever the reel can be tilted downward within easy reach; thus it is possible to stand in one place and hang up all the clothes, after which the reel is pushed back and locked by a lever leaving the lines 10 ft. from the ground. The manufacturer explains that the reel is so thoroughly braced and balanced that the least wind will start it revolving, thus saving the clothes much of the slapping and whipping incident to a high wind. A part of the wooden post which supports the reel is sunk in the ground, but is treated with a preparation which, it is claimed, will prevent it from rotting for many years. Indeed, it is declared that there is nothing in the whole make up which would be likely to break or wear out in a long period.

Underground Gasoline Tank.

The Republic Metalware Company, Buffalo, N. Y., and 88 Warren street, New York, is manufacturing the underground gasoline tank, for safely storing gasoline, as here shown. It is referred to as especially serviceable for autoists, and is made of extra heavy galvanized sheet steel, coated with an antirust preservative paint. It has a capacity of 60 gal. and is complete with gauge rod, strainer, funnel and removable pump. There is a wrought steel vent tube on the left of the pump section, protected with an air tight screw cap, which is removed when filling, and an air tight cap for covering the main tube when the pump is removed. The tank is buried in the ground, so that the vent tube extends but a few inches above it. Gasoline may be pumped from barrel to tank and again strained through the funnel with wire gauze strainer when pumping from tank, to insure against the possibility of dirt getting into the gasoline. The amount of liquid in the tank is always indicated by the gauge rod. The tank is guaranteed by the company air tight and proof against loss by evaporation. Other features are absence of risk from fire loss and no waste by leakage. The tank is 25 in. in diameter and 31 in. high.



Underground Gasoline Tank.

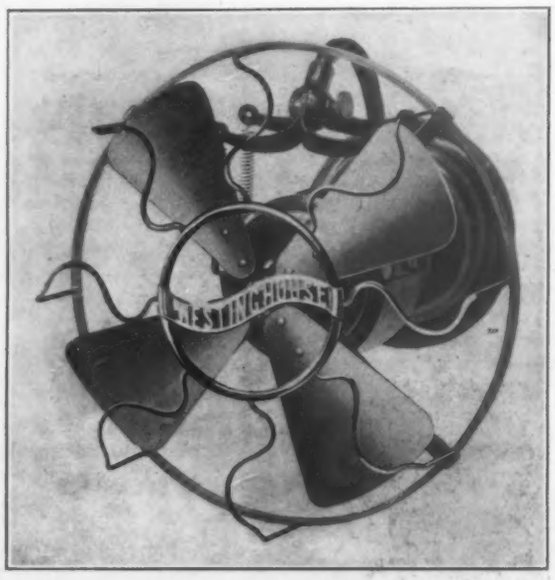
Holwick Power Coffee Mill.

The coffee mill here illustrated is manufactured by B. C. Holwick, Canton, Ohio, and is equipped with an alternating current, single phase Westinghouse motor. The outfit is said to combine strength, durability, neatness and service. The grinders are milled from steel plates, which gives them true and sharp cutting edges, causing them to cut the coffee instead of crushing it. Steel cut coffee is referred to as being more uniform in size than crushed coffee and free from dust, and for these reasons is thought to give a better flavor. The mills are provided with a simple adjustment, by which it is possible to change from coarse to fine grinding, or the reverse, while running, and will granulate 2 lb. of coffee per minute at a cost of about one-thirtieth of 1 cent a pound. A durable self-cleaning attachment is provided. The manufacturer explains that several of these mills on the circuits of a central station add to the revenues without increasing the peak load.

Holwick Power Coffee Mill.

Telephone Booth Fan.

The Westinghouse Electric & Mfg. Company, Pittsburgh, Pa., has added to its product the small fan especially designed for ventilating telephone booths, which is illustrated herewith. The fan is said to be a very useful and efficient little machine, although the blades have

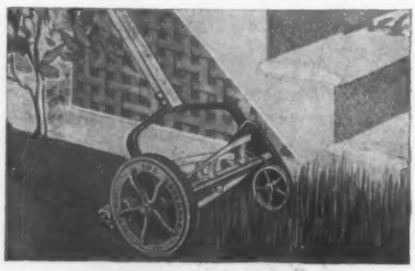


Telephone Booth Fan.

a spread of only 8 in., and the motor is not half the size of the regular 12-in. fan. It is stated that the fans consume only about one-fourth the current required for a 16 candle power lamp, costing only from 1½ to 2 cents per day. They are furnished for direct or alternating current in standard voltages, and have three speeds regulated by a switch. They are said to be practically noiseless, and are especially adapted for use in telephone booths by being hung from brackets by springs as illustrated, which prevent any transmission of vibration from the motor to the 'phone. The Westinghouse Company is also furnishing the 8-in. fans on desk stands and ordinary wall brackets without spring suspension.

Stearns Ball Bearing Lawn Trimmer.

E. C. Stearns & Co., Syracuse, N. Y., who manufacture a high grade ball bearing lawn mower, have added to their line this season a lawn trimmer, which is referred to as a mower and trimmer combined. The machine is a complete Stearns ball bearing lawn mower, but has on the left hand side, in place of the usual housing and driving wheel, a ¼-in. steel plate with a small guide wheel in front as illustrated. It is stated by the manufacturers that the machine will mow the entire lawn like an ordinary mower, but will also cut or trim the grass close up to fences, walls, sidewalks or any obstructions, obviating the necessity of using grass hoops or shears. The trimmer embodies all the features of the Stearns mower, having dustproof, hardened and ground ball bearings, patent ball retainers and solid malleable cylinder arms and roller arms. Handles and rollers are of thoroughly seasoned stock. The knife is made of high grade steel, both the stationary knife and the cylinder knife being of special analysis. The driving wheel is 10 in. in diameter.



Stearns Lawn Trimmer.

Lustrous and lasting bicycle enamels are used in finishing and are baked on hard in steam ovens. Four sizes are listed, 8, 10, 12 and 14 in.

Payson Casement Adjuster.

An improvement in the sash appliances got out by the Payson Mfg. Company, 1319 Jackson boulevard, Chicago, is the casement adjuster here shown. This device is designed to hold a window at any hight, locks automatically at any position and is applicable to all types of casement windows. It is applied by fastening the foot piece to the sill, top or side of the casing, and works equally well upon windows with vertical lift and transoms swinging in and out. The lock piece is center hinged to an anchor plate, furnishing automatic adjustment to the different positions of the rod. The adjusters are furnished in various finishes, including bronzed and polished and unpolished plate, and in suitable sizes and lengths for every requirement.

Payson Casement Adjuster.

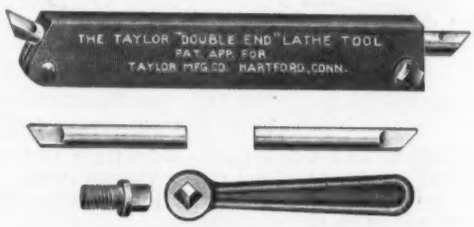
Rollis Tool Sets.

The M. W. Robinson Company, 79 Chambers street, New York, has put on the market the Rollis Tool Set No. 8, here illustrated, which differs in some respects from other styles in its line. The handle is steel, knurled, nickeled and polished, and is 5¾ in. long over all. The body is 15-16 in. diameter and the cap 1 in. It is fitted with a one-piece split spindle chuck, sawed to form four jaws, which are case hardened and capable of holding securely round shank drills as small as 1-16 in. diameter. The handle contains 10 tools 2¾ in. long made of tool steel, consisting of one each gimlet, scratch awl, reamer and gauge and two each screwdrivers, brad awls and chisels, the latter ⅜ and ¼ in. wide, with 3-16 in. shanks. There is another size handle, No. 9, 4½ in. long, with 12 tools, 1¾ in. long, including one each tack claw, chisel, screwdriver, scratch awl, reamer and seven awls varying in size and kind. Both are packed singly in neat double pasteboard boxes.

Rollis Tool Set.

The Taylor Double End Lathe Tool.

The Taylor Mfg. Company, Hartford, Conn., is putting on the market the lathe tool here shown with a tool in each end of the holder. In actual use only one tool is used at a time. The hole in one end holds the tool at the proper angle for turning steel, &c., while the hole in the other end is straight and holds the same tool at the proper angle for turning brass and similar metals which require no top rake. The straight end can also be used for inside threading or boring tools, and also for regular thread cutting, either right or left hand. The tools being round can be adjusted to follow the angle of the thread, either right or left, and cut a smoother thread, it is explained, than with a solid forged tool. The holder is nicely finished all over and hardened. The tools are of high speed steel, accurately finished to size and sharpened ready for use. The holes in the holder are accurately reamed and the split clamp holds the tools practically as rigid as if solid. The holder is made in four sizes, using round tools from ¼ to ½ in. Each holder is packed in a neat wooden box with wrench and two high speed steel cutters.



The Taylor Double End Lathe Tool.

New Hand Saws.

The Simonds Mfg. Company, Fitchburg, Mass., and Chicago, Ill., has added to its line two new hand saws which are described in catalogue pages now being sent out. One is listed as No. 9 and is a narrow bladed, skew back, ship saw for which there has been a demand from carpenters. The other is No. 10½, a skew back saw added for the purpose of giving merchants a wider range of choice in placing stock orders.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	℔ gal. 5 bbl. lots.
Linseed, Western, Raw	.55 @56
State, Raw	.55 @56
City, Raw	.56 @57
Boiled, 1¢ ℔ gal. advance on Raw.	
Raw, Calcutta, in bbls	.75 @..
Lard, Prime, Winter	.78 @80
Extra No. 1	.57 @58
No. 1	.48 @49
Cotton-seed, Crude, f.o.b. mill	.31½@32½
Summer, Yellow, prime	5.38@5.45
Summer, White	5⅝@ 5⅞
Yellow, Winter	5½@ 6
Tallow, Acidless	.56 @..
Menhaden, Brown, Strained	.33 @34
Northern Crude	@..
Southern	.24 @25
Light Strained	.33 @34
Bleached Winter	.36 @..
Cocoanut, Ceylon	℔ lb 6⅝@ 6¾
Cochin	℔ lb 6⅞ @ 7
Cod, Domestic, Prime	.38 @..
Newfoundland	.40 @..
Red Elaine	.43 @47
Saponified	℔ lb .. @ 6¼
Olive, Yellow	$1.50@1.60
Neatsfoot, Prime	.57 @..
Palm, Lagos	℔ lb 5⅞@ 6

Mineral Oils—

	℔ gal.
Black, 29 gravity, 25@30 cold test	.13 @13½
29 gravity, 15 cold test	.13½@14
Summer	.12½@13
Cylinder, light filtered	.20½@21
Dark, filtered	.18 @19
Paraffine, 903-907 sp. gravity	.14½@15
903 sp. gravity	.13½@14
883 sp. gravity	.11 @11½
Red	.13½@14

Miscellaneous—

Barytes:	
White, Foreign	℔ ton $18.50@20.50
Amer., floated	℔ ton 17.00@18.00
Off color	℔ ton 12.50@15.00
Chalk in bulk	℔ ton 3.00@ 3.40
China Clay, Imported	℔ ton 11.50@18.00
Cobalt, Oxide	℔ 100 lb 1.45@ 2.60
Whiting, Commercial	℔ 100 lb 45@50
Gilders	℔ 100 lb .52@ .64
Ex. Gilders	℔ 100 lb .56@ .68

Putty, Commercial—℔ 100 lb

In bladders	$1.70@2.00
In bbls. or tubs, 100 lb	1.20@1.45
In 1 lb to 5 lb tins	2.65@3.25
In 12½ to 50 lb tins	1.50@1.90

Spirits Turpentine—℔ gal.

In Machine bbls	39½@40
In Oil bbls	.40 @40½

Glue—

	℔ lb
Cabinet	.12 @15
Common Bone	.7½@ 9
Extra White	.18 @24
Fish, liquid, 50 gal. bbls., per gallon	.60 @1.20
Foot Stock, White	.12 @14
Foot Stock, Brown	.9 @11
German Common Hide	.10 @12
German Hide	.12 @18
French	.10 @40
Irish	.13 @16
Low Grade	.10 @12
Medium White	.14 @19

Gum Shellac—

	℔ lb
Bleached, Commercial	@17
Bone Dry	@22
Button	.20 @30
Diamond I	.29 @30
Fine Orange	.23 @24
A. C. Garnet	.16½@17
G. A. L. Garnet	.16 @17
Kala Button	.12 @13
D. C.	.29 @30
Octagon B	.24 @26
T. N.	.15½@16½
V. S. O.	.27 @28

Colors in Oil—

	℔ lb
Black, Lampblack	.12 @14
Blue, Chinese	.36 @46
Blue, Prussian	.32 @36
Blue, Ultramarine	.13 @16
Brown, Vandyke	.11 @14
Green, Chrome	.12 @16
Green, Paris	@24
Sienna, Raw	.12 @15
Sienna, Burnt	.12 @15
Umber, Raw	.11 @14
Umber, Burnt	.11 @14

White and Red, Lead &c.—

	℔ lb
Lead, English white, in Oil	.10¼@10¾
Lead, American White:	
Dry and in Oil, 100, 250 and 500 lb kegs	6¾
Dry and in Oil, 25 and 50 lb kegs	7
Dry and in Oil, 12½ lb kegs	7¼
In Oil, 25 lb tin pails	7¼
In Oil, 12½ lb tin pails	7¾
In Oil, 1, 2, 3 and 5 lb tin cans, ass't	8¾
Red Lead and Litharge:	
In 100 lb kegs	7
In 25 and 50 lb kegs	7¼
In 12½ lb kegs	7½
In lots of less than 500 lbs, ½¢ ℔ lb advance over above prices of White and Red Lead and Litharge	
Lead, American. Terms: On lots of 500 lbs and over, 60 days, or 2% for cash if paid in 15 days from date of invoice.	

Zinc, Dry—

	℔ lb
American, dry	5¼@ 5¾
Red Seal (French process)	6¾@ 7
Green Seal	7¼@ 7½
German Red Seal (French process)	7 @7¼
Green Seal	7½@ 7¾
White Seal	8¼@ 9
French, Red Seal	8¾@ 8¾
Green Seal	10¾@10¾

Dry Colors—

	℔ lb
Black, Carbon	6¼@10
Black Drop, American	3½@ 8
Black Drop, English	5 @15
Black, Ivory	.16 @20
Lamp, commercial	4 @ 6
Blue, Celestial	4 @ 6
Blue, Chinese	.30 @31
Blue, Prussian, Domestic	.28 @30
Blue, Ultramarine	5 @15
Brown, Spanish	½@ 1
Carmine, No. 40	$3.00@3.10
Green, Chrome, ordinary	3½@ 5
Green, Chrome, pure	.17 @25
Ocher, American	℔ ton $12.00@15.00
American Golden	4 @ 5
French	1¾@ 2
Foreign Golden	3 @ 4
Orange Mineral, English	.10 @12
French	12¾@13
German	.12 @13
American	8½@10
Red, Indian, English	5 @ 7
American	3 @ 3¼
Red, Turkey, English	4 @10
Red, Tuscan, English	7 @10
Red, Venetian, Amer.	℔ 100 lb $0.75@1.50
English	℔ 100 lb $1.15@1.60
Sienna, Italian, Burnt and Powdered	3 @ 9
Italian, Raw, Powdered	3 @ 7
American, Raw	2¼@ 3
American Burnt and Pow'd.	2¼@ 3
Talc, French	℔ ton $18.00@25.00
American	℔ ton 15.00@25.00
Terra Alba, French	℔ 100 lb .80@1.00
English	℔ 100 lb .90@1.00
American	℔ 100 lb, No. 1, .75@ .80
American	℔ 100 lb, No. 2, .60@ .65
Umber, T'key, Bnt. & Pow.	2¾@ 3
Turkey, Raw and Powdered	2¾@ 3
Burnt, American	2 @2½
Raw, American	2 @ 2½
Yellow, Chrome, Pure	12¾@14
Oxide Red, American	2 @ 7½
Vermilion, English, Imported	@70
Chinese	$0.90@1.00

THE IRON AGE

The oldest paper in the world devoted to the interests of the Hardware, Iron, Machinery and Metal Trades, and a standard authority on all matters relating to those branches of industry.

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Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are usually given to larger buyers.

Special Goods.—Quotations printed in small type (Roman) relate to goods of particular manufacturers, who request the publication of the prices named and are responsible for their correctness. They usually represent the prices to the small trade, lower prices being generally obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued annually, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—"The Iron Age Standard Hardware Lists" contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Columbian and Domestic....33⅓%
North's 10%
Upson's Patent, ℔ gro., $29.90....10%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent....10%
Ives' Stop Bead Screws and Washers 10%
Taplin's Perfection....10%

Ammunition—See *Caps, Cartridges, Shells, &c.*

Anti—Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers, ℔ doz. pairs, Nos. 1, $0.75; 2, $0.60; 4, $1.00; 5, $0.50.
Fernald Quick Shifter, ℔ doz. pairs ....$2.00@$3.00

Anvils—American—

Eagle Anvils....℔ lb @8 ¢
Hay-Budden, Wrought....9½@9¾¢
Trenton ....℔ lb 9½@9¾¢

Imported—

Swedish Solid Steel Paragon, ℔ lb ....10@10½¢
Swedish Solid Steel Sisco, Superior, ℔ lb....10@10½¢
Peter Wright & Sons, ℔ lb, 84 to 340 lb, 11¢; 350 to 600 lb, 11½¢.

Anvil, Vice and Drill—

Millers Falls Co., $18.00....15&10%

Apple Parers— See *Parers, Apple, &c.*

Aprons, Blacksmiths'—

Livingston Nail Co....10%

Augers and Bits—

Com. Double Spur....80%
Jennings' Patn., Bright.65&10@70%
Black Lip or Blued....65@65&6%
Boring Mach. Augers....70%
Car Bits, 12-in. twist....40&10%
Ford's Auger and Car Bits....40&5%
Ft. Washington Auger Co., Conard's 35%
Forstner Pat. Auger Bits....25%
C. E. Jennings & Co.:
No. 10 ext. lip. R. Jennings' list, 25&7½%
No. 30, R. Jennings' list....50%
Russell Jennings'....25&15&2½%
L'Hommedieu Car Bits....15%
Mayhew's Countersink Bits....45%
Pugh's Black....20%
Pugh's Jennings' Pattern....35%
Snell's Auger Bits....60%
Snell's Bell Hangers' Bits....60%
Snell's Car Bits, 12-in. twist....60%
Snell's King Auger Bits....50%
Swan's ....65&10@70%
Swan's, Jennings' Pattern....50%
Wright's Jennings' Bits....50%

Bit Stock Drills—

See *Drills, Twist.*

Expansive Bits—

Clark's Pattern, No. 1, ℔ doz., $36; No. 2, $18....60&10%
Ford's, Clark's Pattern....60&5@60&10%
C. E. Jennings & Co., Steer's Pat..25%
Lavigne Pat., small size, $18.00; large size, $26.00....60&10%
Swan's 60%

Gimlet Bits—

Per gro.
Common Dbl. Cut....$3.00@3.25
German Pattern, Nos. 1 to 10, $4.75; 11 to 13, $5.75

Hollow Augers—

Bonney Pat., per doz..$5.50@6.00
Ames ....20&10%
Universal 20%

Ship Augers and Bits—

Ship Augers....40&10@—%
Ford's ....33⅓&5%
C. E. Jennings & Co.:
L'Hommedieu's 6%
Watrous' ....33⅓&7½%
Snell's 40%

Awl Hafts—See *Handles, Mechanics' Tool.*

Awls—

Brad Awls:
Handled ....gro. $2.75@3.00
Unhdled, Shldered...gro.63@66¢
Unhandled, Patent..gro.66@70¢
Peg Awls:
Unhandled, Patent..gro. 31@34¢
Unhdled, Shldered..gro. 65@70¢
Scratch Awls:
Handled, Com...gro. $3.50@4.00
Handled, Rocket..gro.$11.50@12.00
Elmore Tool Mfg. Co.:
Tinners' and Brad Awls....55&7%
Scratch Awls....60%

Awl and Tool Sets—See *Sets, Awl and Tool.*

Axes—

Single Bit, base weights: Per doz.
First Quality....$4.75@5.00
Second Quality....$4.25@4.50
Double Bit, base weights:
First Quality....$7.00@7.50
Second Quality....$6.50@6.75

Axle Grease—

See *Grease, Axle.*

Axles— *Iron or Steel.*

Concord, Loose Collar...4¼@4½¢
Concord, Solid Collar....4½@5 ¢
No. 1 Common, Loose...3½@4 ¢
No. 1½ Com., New Style..4¼@4¾¢
No. 2 Solid Collar....4¼@4¾¢
Half Patent:
Nos. 7, 8, 11 and 12....70%
Nos. 13 to 14....70%
Nos. 15 to 18...70&10@70&10&5%
Nos. 19 to 22...70&10@70&10&5%

Boxes, Axles—

Common and Concord, not turned ....lb., 5@6¢
Common and Concord, turned, lb., 6@7¢
Half Patent....lb., 9½@10¢

Bait— Fishing—

Hendryx:
A Bait....20%
B Bait....25%
Competitor Bait....20&5%

Balances— Sash—

Caldwell new list....50&10%
Pullman ....50&10%

Spring—

Light Spring Balances..60@60&5%
Chatillon's:
Light Spg. Balances....50@50&10%
Straight Balances....40@40&10%
Circular Balances....50&10%
Large Dial....35%

Barb Wire—See *Wire, Barb.*

Bars— Crow—

Steel Crowbars, 10 to 40 lb.... per lb., 2¼@2½¢

Towel—

No. 10 Ideal, Nickel Plate..℔ gro. $8.50

Beam, Scale—

Scale Beams....40%
Chattillon's No. 1....30%
Chatillon's No. 2....40%

Beaters, Carpet—

Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz. $0.90; Tinned $0.95
No. 11 Wire Coppered ℔ doz. $1.15; Tinned $1.20
No. 10 Wire Tinned....℔ doz. $1.50

Beaters Egg—

Dover Stamping & Mfg. Co.:
Genuine Dover, per gro., No. 1, Tumbler Size, $7.50; No. 2, Family Size, $7.50; No. 3, Extra Family Size, $24.00; No. 4, Hotel Size, $50.00.
Holt-Lyon Co.:
Holt, per doz., No. 5, Jap'd. $0.80; No. A, Jap'd, $1.15; No. B, Jap'd, $1.85; No. C, Jap'd, $1.65.
Lyon, Jap'd, per doz., No. 2, $1.35.
Taplin Mfg. Co.:
Improved Dover, per gro., No. 60, $6.00; No. 75, $6.50; No. 100, $7.00; No. 102, Tin'd, $8.50; No. 150, Hotel, $15.00; No. 152, Hotel Tin'd, $17.00; No. 200, Tumbler, $8.50; No. 202, Tumbler Tin'd, $9.50; No. 300, Mammoth, per doz., $25.00.

Bellows—

Blacksmith, Standard List:
Split Leather....60&10@65%
Grain Leather....50@50&10%

Hand—

Inch..	*6*	*7*	*8*	*9*	*10*
Doz..	*$5.00*	*5.50*	*6.00*	*6.50*	*7.50*

Molders—

Inch..	*10*	*12*	*14*	*16*
Doz..	*$7.50*	*9.00*	*12.00*	*15.00*

Net Prices.

Bells— Cow—

Wrought Cow Bells....75%
Jersey ....75&10%
Texas Star....50%

Door—

Home, R. & E. Mfg. Co.'s....55&10%

Hand—

Polished, Brass....60@60&10%
White Metal....60@60&10%
Nickel Plated....50&10%
Swiss ....50&10%
Cone's Globe Hand Bells....33⅓@35%

Miscellaneous—

Farm Bells....lb., 2¼@2½¢
Church and School....60@60&10%

Belting— Leather—

First Quality, Ex. Hy., Strictly Short Lap....60&10%
Standard ....70&10@70&10&5%
Light Double....75&10%
Cut Leather Lacing....45@50%
Leather Lacing Sides, per sq. ft.25¢

Rubber—

Competition (Low Grade), 70&10@75%
Standard ....60&10@70%
Best Grades....40@50%

Bench Stops—

See *Stops, Bench*

Benders and Upsetters, Tire—

Green River Tire Benders and Upsetters 20%

Bicycle Goods—

John S. Leng's Son & Co.'s 1908 list:
Chain, Parts, Spokes....50%
Tubes 60%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks Tackle—

Common Wooden....75@75&5%
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50&10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50&10%; Wire Rope Snatch, 50%.
Lane's Patent Automatic Lock and Junior 30%
See also Machines, Hoisting.

Boards, Stove—

Paper and Wood Lined....55%
Embossed 55%

Boards, Wash—

See *Washboards.*

Bobs, Plumb—

Keuffel & Esser Co....33⅓&10%

Bolts Carriage, Machine, &c.—

Common Carriage (cut thread): ⅝ x 6 and smaller....75&10%
Larger and longer....70&10%
Common Carriage (rolled thread): ⅝ x 6, smaller and shorter, 75&10&5%
Phila. Eagle, $3.00 list...80@—%
Bolt Ends, with C. & T. Nuts, 70&10%
Machine (Cut Thread): ⅜ x ¼ and smaller....75&10&5%
Larger and longer....70&10&5%

Door and Shutter—

Cast Iron Barrel, Japanned, Round Brass Knobs:

Inch ...	*3*	*4*	*5*	*6*	*8*
Per doz..	*$0.30*	*.35*	*.45*	*.60*	*.80*

Cast Iron Spring Foot, Jap'd:

Inch	*6*	*8*	*10*
Per doz.....	*$1.20*	*1.50*	*2.25*

Cast Iron Chain, Flat, Japanned:

Inch	*6*	*8*	*10*
Per doz.....	*$1.00*	*1.40*	*1.65*

Cast Iron Flat Shutter, Jap'd, Brass Knobs:

Inch	*6*	*8*	*10*
Per doz.....	*$0.75*	*.95*	*1.25*

Wrought Barrel Japanned, 80&10@80&10&5%
Barrel Bronzed....60&10%
Spring ....70&10@70&10&10%
Shutter ....50&5@50&10&5%
Square Neck....75@75&10%
Square ....70&10&10@80%
Ives' Mortise....10%
Ives' Wrought Metal....10%

Expansion—

F. H. Evans' Crescent....60@60%
Richards Mfg. Co....55&10%
Star Expansion Bolt Co.:
Star, Lag Screw Type..60&10&5&2½%
Star, Wood Screw Type....40%
Star, Machine, Single Wedge....60%
Star, Machine, Double Wedge....60%
Steward & Romain Mfg. Co.:
Style No. 13, Double....60%
Style No. 1, Single....60%
Style No. 100, Dbl. Jaw, Single..55%
Lag Screw....66⅔%

Plow and Stove—

Plow ....65&5@70%
Stove ....85@85&5%

Tire—

Common Iron....80%
Norway Iron....80%
American Screw Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84. 82½%
Bay State, list Dec. 28, '99....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84...82½%
Eclipse, list Dec. 28, '99....80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99....80%
Norway Phila., list Oct. '84....80%
Eagle 82½%
Shelton Co.:
Tiger Brand, list Dec. 28, '99....80%
Phila., Eagle, list Oct. 16, 1884..82½%
Upson Nut Co.:
Tire Bolts....72½%

Borers, Bung—

Borers Bung, Ring, with Handle:

Inch.....	*1¼*	*1½*	*1¾*	*2*
Per doz...	*$4.80*	*5.60*	*6.40*	*8.00*
Inch.....			*2¼*	*2½*
Per doz.....			*$8.65*	*11.50*

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.75; No. 3, $2.50 each....25%

Boxes, Mitre—

C. E. Jennings & Co....25%
Langdon, New Langdon and Langdon Improved, 20&10%; Langdon Acme ....15&10%
Perfection 40%
Seavey 45%

Braces—

Common Ball Bearing, American..$1.50@$1.75
Barber's ....50&10&10@60&10%
Fray's Genuine Spofford's....60%
Fray's No. 61, 166, 206, 614....50%
C. E. Jennings & Co....50&5%
Mayhew's Ratchet....60%
Mayhew's Quick Action Hay Pat...50%
Millers Falls Drill Braces....25&10%
P., S. & W. Co., Peck's Pat....60&10%

Brackets—

Wrought Steel....80@80&5%
Bradley Metal Clasp...80&10@80&10&5%
Griffin's Pressed Steel....75@75&10%
Griffin's Folding Brackets....70&10%
Stanley's Pressed Steel....80%
Stanley's Folding Brackets..70&10&5%
Taplin Victor Handy Egg Beater Bracket ....℔ doz. $1.50

Bright Wire Goods—

See *Wire and Wire Goods.*

Broilers—

Kilbourne Mfg. Co....75&20%
Wire Goods Co....75%

Buckets, Galvanized—

M'fr's list, price per gross.

	Quart..	*10*	*12*	*14*
Water, Light..		*$28.35*	*30.75*	*34.75*
Water, Ex. Hvy.		*46.85*	*49.35*	*53.25*
Fire, Rd. Btm.		*33.50*	*35.90*	*39.90*
Well		*37.35*	*41.35*	*45.35*

10&7½&5&2½%

Bull Rings—See *Rings, Bull.*

Butts— Brass—

Wrought, High List, Oct.26,'06.65%
Cast Brass, Tiebout's....40&10%

Cast Iron—

Fast Joint, Broad....40&10@50%
Fast Joint, Narrow...40&10@50%
Loose Joint....70&10@75%
Loose Pin....70&10@75%
Mayer's Hinges....70@70&5
Parliament Butts....70@70&5

Wrought Steel—

BRIGHT.
Light Narrow, Light Reversible ....75&5%
Reversible and Broad.75&10%
Loose Joint, Narrow, Light Inside Blind, &c....75%
Back Flaps, Table Chest.70%
BRONZED.
Light Narrow, Loose Pin..55%
Light, Loose Pin, Ball Tip.65%
Broad 55%

Extra, 10@—

Cages, Bird—

Hendryx Brass: Series 3000, 5000, 1100, net list; 1200, 15%; 200, 300, 900 ..... 30%
Hendryx Bronze: Series 700, 800.... 30%
Hendryx Enameled 35%

Calipers—See *Compasses.*

Calks, Toe and Heel—

Blunt, 1 prong, per 100 lb., $3.50@$3.85
Sharp, 1 prong, per 100 lb., $4.00@$4.35
Burke's, 1 pg. Blunt Toe, 3¾¢; 2 pg. Blunt Toe, 4¼¢; 1 pg. Sharp Toe, 4¾¢; 2 pg. Sharp, 4¾¢; Blunt Heel, 4¼¢; Sharp Heel..... 4¾¢
Lautier, Blunt, 4@4¼¢; Sharp, 4½@4¾¢
Perkins', Blunt, ℔ lb, 3.65¢; Sharp, 4.15¢

Can Openers—

See *Openers, Can.*

Caps, Percussion—

Eley's E. B. ..... 52@55¢
G. D. ..... *per M.* 34@35¢
F. L. ..... *per M.* 40@42¢
G. E. ..... *per M.* 48@50¢
Musket ..... *per M.* 62@63¢

Primers—

Berdan Primers, $2 per M. 20&5%
Primer Shells and Bullets. 15&10%
All other primers per M. $1.52@1.60

Carpet Stretchers—

See *Stretchers, Carpet.*

Cartridges—

Blank Cartridges:
32 C. F., $5.50 ..... 10&5%
38 C. F., $7.00 ..... 10&5%
22 cal. Rim, $1.50 ..... 10&5%
32 cal. Rim, $2.75 ..... 10&5%
B. B. Caps, Con. Ball, Swgd. $1.90
B. B. Caps, Round Ball. $1.40
Central Fire 25%
Target and Sporting Rifle. 15&5%
Primed Shells and Bullets. 15&10%
Rim Fire, Sporting 50%
Rim Fire, Military ..... 15&5%

Casters—

Bed ..... 65&10@70%
Plate ..... 60@60&5%
Philadelphia ..... 70&10@75%
Acme, Ball Bearing 35%
Gem (Roller Bearing)..... 70&10&10%
Steel Gem (Roller Bearing)..... 70%
Standard Ball Bearing 45%
Yale (Double Wheel) low list... 40&10%

Cattle Leaders—

See *Leaders, Cattle.*

Chain, Proof Coil—

American Coil, Straight Link:

3-16	¼	5-16	⅜	½	⅝
$7.45	4.80	3.85	3.25	3.10	3.00

⅝-⅞-1 1⅛ to 1¼ inch.
$2.90 3.00
In cask lots, deduct 25¢.
German Coil ..... 70&5%
German Pattern Coil:
6-0 to 1 ..... 70&10&5%
2 and 3 ..... 60&10&10@70%
4, 5 and 6 ..... 50&10@50&10&5%

Halter—

Halter Chains ..... 60&5@60&10%
German Pattern Halter Chains, list July 24, '97 ..... 70&5%
Covert Mfg. Co.:
Halter ..... 35&5%

Cow Ties—

See *Halters and Ties.*

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6½—6-3, Straight, with ring. $26.00
6½—6-2, Straight, with ring. $27.00
6½—8-2, Straight, with ring. $30.00
6½—10-2, Str'ght, with ring. $35.00
NOTE.—Add 2c per pair for Hooks Twist Traces: add per pair for Nos. 2 and 3, 2c; No. 1, 3c; No. 0, 4c to price of Straight Link.
Eastern Standard Traces, Wagon Chain, &c 70%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron ..... 60&10&5@60&10&10%
Brass 65%
Safety and Plumbers' Chain. 75%
Gal. Pump Chain .... *lb.*, 4½@5%
Bridgeport Chain Co.:
Triumph Halter and Coil. 35&2½&40%
Triumph Dog ..... 50&10@60%
Brown Halter and Coil.... 45@50&5%
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stallion 40%
Oneida Community:
American Halter, Dog and Kennel Chains ..... 35&2½&40%
Niagara Dog Leads and Kennel Chains ..... 45@50&5%
Wire Goods Co.:
Dog Chain 70%
Universal Dbl.-Jointed Chain.... 70%

Chain and Ribbon, Sash—

Oneida Community:
Steel Chain 60%
Pullman:
Bronze Chain, 60%; Steel Chain, Coppered ..... 60&10%
Sash Chain Attachments, per set. 8¢
Aluminoy Sash Ribbon, per 100 ft. ..... $2.00@$5.00
Sash Ribbon Attachments, per set. 8¢

Chalk—

Carpenters' Blue ..... *gro.*, 50¢
Carpenters' Red ..... *gro.*, 50¢
Carpenters' White ..... *gro.*, 40¢

Checks, Door—

Bardsley's 45%
Pullman, per gro. $54.00
Russwin 33⅓%

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools..... 55%
Youths' Chests, with Tools..... 40%
Gentlemen's Chests, with Tools.. 30%
Farmers', Carpenters, etc., Chests, with Tools 20%
Machinists' and Pipe Fitters' Chests, Empty 45%
Tool Cabinets 45%
C. E. Jennings & Co.'s Machinists' Tool Chests 7½%

Chisels—

Socket Framing and Firmer

Standard List.. 80&10@80&10&10%
Buck Bros. 30%
C. E. Jennings & Co.:
Socket Firmer No. 10..... 25&7½%
Socket Framing No. 15..... 25&7½%
Swan's ..... 66⅔@70%
L. & I. J. White & Co..... 30@30&5%

Tanged—

Tanged Firmers ..... 30&5@35%
Buck Bros. 30%
C. E. Jennings & Co. Nos. 191, 181.. 25%
L. & I. J. White Co..... 25&5%

Cold— *lb.*

Cold Chisels, good quality. 13@15¢
Cold Chisels, fair quality. 11@12¢
Cold Chisels, ordinary.... 9@10¢
Elmore Tool Mfg. Co.:
Cold Chisels ..... 50&5%

Chucks—

Almond Drill Chucks 35%
Almond Turret Six-Tool Chuck..... 40%
Beach Pat, each $8.00 ..... 35&5%
Blacksmiths' 25%
Cincinnati Chuck Co.:
Independent 4-jaw Reversible..... 35%
Empire 25%
Jacobs' Drill Chucks 35%
Pratt's Positive Drive 25%
Skinner Lathe Chucks:
Independent 35%
Universal, Reversible Jaws..... 35%
Universal, Com. Style Jaws..... 40%
Combination, Reversible Jaws.... 35%
Combination, Com. Style Jaws... 40%
Round Body or Box Body, 2 Chuck Jaws 25%
Geared Scroll Chucks 25%
Drill Chucks:
New Model, 25%; Geared Pattern, 25%; Skinner Patent, ... 25%
Positive Drive 40%
Planer Chucks 20%
Standard 45%
Drill Press Vises 30%
Face Plate Jaws 35%
Standard Tool Co.:
Improved Drill Chuck 45%
Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6, 7, 8 and 17, 40%; No. 21..... 35%
Scroll Combinations, Nos. 83 and 84 ..... 30%
Geared Scroll, Nos. 33, 34 and 35.. 25%
Independent Iron, Nos. 18 and 318. 35%
Independent Steel, No. 64..... 25%
Union Drill, Nos. 000, 00, 100, 101, 102, 103, 104 ..... 35%
Union Czar Drill 25%
Universal, 11, 12, 16, 17, 13, 14, 15.. 40%
Universal No. 42 ..... 35%
Iron Face Plate Jaws, Nos. 28, 30, 48 and 50 ..... 35%
Steel Face Plate Jaws, Nos. 70 and 72 ..... 30%
Westcott Patent Chucks:
Lathe Chucks 50%
Little Giant Auxiliary Drill..... 50%
Little Giant Double Grip Drill... 50%
Little Giant Drill, Improved..... 50%
Oneida Drill 50%
Scroll Combination Lathe..... 50%
Whitaker Mfg. Co.:
National Drill 25%

Clamps—

Carriage Makers', Star, P., S. & W. Co. 50%
Besly, Parallel ..... 33⅓&10%
Hammer & Co.:
Adjustable ..... 20&5%
Carriage Makers' H. P. Screw. 40&5%
Myers' Hay Rack 50%
Lineman's Swedish Neverturn..... 65%
Saw Clamps, see Vises, Saw Filers'

Cleaners, Drain,

Iwan's Champion, Adjustable..... 50%
Iwan's Champion, Stationary..... 40%

Sidewalk—

American Fork & Hoe Co.:
Star, ℔ doz., Socket, $4.00; Shank $3.50
Shank, ℔ doz., X 7½, $3.50; Shank, X 8 ..... $3.75

Cleavers, Butchers'—

Foster Bros. 30%
Fayette R. Plumb..... 30%
L. & I. J. White Co..... 30%

Clippers, Horse and Sheep—

Chicago Flexible Shaft Co.:
1902 Chicago Horse, each..$10.75
20th Century Horse, each...$5.00
Lightning Belt Horse, each.$15.00
Chicago Belt Horse, each. $20.00
Stewart's Enclosed Gear Ball Bearing Horse, each.....$7.50
Stewart's New Model Sheep Shearing Machine, each.$12.75
Stewart Enclosed Gear Shearing Machine, No. 8, each..$9.75
} 25%

Clips, Axle—

Regular Styles, list July 1, '05, 80&80&10%

Cloth and Netting, wire —See *Wire, &c.*

Cocks, Brass—

Hardware list:
Plain Bibbs, Globe, Kerosene, Racking, Liquor, Bottling, &c 75%
Compression Bibbs 70%

Coffee Mills—

See *Mills, Coffee.*

Collars, Dog—

Nickel Chain, Walter B. Stevens & Son's list 40%
Leather, Walter B. Stevens & Son's list 40%

Compasses, Dividers, &c.

Ordinary Goods ..... 75@75&5%

Conductor Pipe,—

	L. C. L. to Dealers: Gal. Steel.	Charcoal.	Copper.
Northeastern:			
70&10@—%	50&10&7½%		50&10%
Eastern:			
75@—%	50&10&7½%		50&10%
Central:			
75@—%	60%		50&10%
Northwestern:			
75@—%	60%		50&10%
Western:			
70&10@—%	50&12½%		50&5%
Tennessee:			
70&10@—%	50&12½%		50&10%
Southern:			
70&10@—%	50&12½%		50&5%
Southwestern:			
70@—%	50&5%		50&5%

Terms, 60 days: 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

L. & G. Mfg. Co.:

Gal.	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2.25	$2.90	$3.90

Galvanized, Lined, side handles,

Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15

White Enameled 10%
Agate Lined 10%

Coppers' Tools—

See *Tools, Coopers'.*

Coppers, Soldering—

Soldering Coppers, 3 lb. to pair and heavier, 21½¢; lighter than 3 lb. to pair ..... 23½¢

Cord— Sash—

Braided, Drab ..... *lb.* 35¢
Braided, White, Com., Nos. 8 to 12, 22¢; No. 7, 22½¢; No. 6, 23½¢. In lots of 12 doz. or over, 1 cent less per pound.
Cable Laid Italian, lb., No. 18. 37¢
Italian, lb., A, No. 18, 25¢; B, 22¢
Common India ..... *lb., 11@11½¢*
Cotton Sash Cord, Tw'ted. 18@20¢
Patent Russia ..... *lb....* 20¢
Cable Laid Russia ..... *lb...* 21¢
India Hemp, Br'd'd ..... *lb...* 21¢
India Hemp, Twisted..lb. 13@14¢
Patent India, Twisted..lb... 17¢
Pearl Braided, cotton, No. 6, ℔ lb, 20½¢; No. 7, 19½¢; Nos. 8 to 12, 19½¢, in 12 doz. to 100 doz. lots.
Eddystone Braided, Nos. 8 to 12, 26¢; 7, 26½; 6, 27½¢.
Harmony Cable Laid Italian, Nos. 7 to10 ..... ℔ lb 23¢
Pullman:
Wire Sash Cord 10%
Sash Cord Attachments, per 100.. $2.00
Samson, Nos. 8 to 12:
Braided, ℔ lb., Drab Cotton, 55¢; Italian Hemp, 40¢@50¢; Linen, 65¢; White Cotton, 50¢; Spot Cord..... 50¢
Massachusetts, White...℔ lb 40¢
Massachusetts, Drab...℔ lb 45¢
Phoenix, White, Nos 8 to 12.... 27¢
} 12½%
Silver Lake, per lb.:
A, Drab, 45¢; A, White, 40¢; B, Drab, 40¢; B, White, 35¢; Italian Hemp, 40¢; Linen....57½¢
See also Chain and Ribbon.

Wire, Picture—

Full Length ..... 90@—%
Short Length ..... 90&20@—%
Hendryx Standard Wire Picture Cord ..... 90&10%
Turner & Stanton Co. Wire Picture Cord 90%

Cradles—

Grain 50%

Crayons—

White Round Crayons, Cases, 100 gro., $8.00, $8.50, $9.00 and $10.00 according to grade.
Zelnicker's Lumber: ℔ gro.
White and Purple, Indelible....$7.50
Blue, Red, Green, Yellow and Terra Cotta, $6.50; Black.....$4.50
Giant Lumber, 5¼ in. x 15-16 in. round, all colors, $12.00; Indelibles, $14.00; Blacks..... $10.00
Genuine Soapstone, Metal Workers', 5 in. x ¼ in. Round, $2.50; 5 in. x ¼ in. Square, $1.75; 5 x ⅝ x 3-16, $2.50; 5 x 1¼ x 3-16..... $3.00
Suremark, Black, $2.25; Blue, Red and Yellow $2.50

Crooks, Shepperds'—

American Fork & Hoe Co.:
Montana ..... ℔ doz. $4.50

Crow Bars—See *Bars, Crow.*

Cultivators—

American Fork & Hoe Co.:
Victor Garden ..... 50&10%

Cutlery, Table—

International Silver Company:
No. 12 M'd'm Knives, 1847. ℔ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor ..... ℔ doz. $3.00
Wm. Rogers & Son..... ℔ doz. $2.50

Cutters— Glass—

H. H. Mayhew Co..... 40%
Red Devil 60%
B. Mfg. Co..... 40%
Woodward 50%

Meat and Food—

American 30%

Nos.	401	402	403	404	405	406	407
Each	$5	$7	$10	$12	$25	$50	$80

Enterprise:

Nos.	5	10	12	22	32
Each	$2	$3	$2.75	$4.50	$6

25@25&7½%
No. 202, $1.50 ..... 10&7½%
P., S. & W. Co.:
Ideal ..... 40@40&5%
Hales ..... 60&5%
Little Giant ..... ℔ doz. 40@50%

Nos..	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

New Triumph No. 605, ℔ doz. $24.00.. 40%
Russwin Food, No. 1, $24.00; No. 2, $27.00; 3, $42.00..... 45&10&10%
Enterprise Beef Shavers..... $15.00 ..... $18.00
Enterprise Beef Shavers..... 25@30%

Slaw and Kraut—

Henry Disston & Sons:
Slaw and Kraut Cutters..... 35%
Corn Graters 30%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife.... ℔ doz. $3.00
Combined Slaw Cutter and Corn Grater ..... ℔ doz. $4.00

Tobacco—

All Iron, Cheap...doz, $4.25@4.50
Enterprise ..... 25@30%
National, ℔ doz., No. 1, $21; No. 2, $18 ..... 40%

Diggers, Post Hole, &c—

Disston's:
Rapid, ℔ doz., $24.00..... 25%
Samson, ℔ doz., $34.00..... 25%
Iwan's Pat. Post Hole and Well Auger 40%
Vaughan Pattern Post Hole Augers, ℔ doz., $7.00
Perfection Post Hole Diggers, ℔ doz. $8.50
Split Handle Post Hole Diggers, ℔ doz., $7.50
Hercules Pattern, ℔ doz..... $9.50
Kohler's, ℔ doz., Universal, $14.00; Little Giant, $12.00; Hercules, $10.00; Invincible, $9.00; Rival, $8.50; Pioneer..... $7.50
Never-Break Crucible Steel Post Hole Diggers 60%

Dividers—See *Compasses.*

Drawing Knives—

See *Knives, Drawing.*

Dressers Emery Wheel—

Sterling Emery Wheel Dressers..... 35%
Sterling Wheel Dresser Cutters..... 33⅓%

Drills and Drill Stocks—

Blacksmith's Common Drilling Machines ..... $1.50@1.75
Breast, Millers Falls..... 15&10%
Breast, P., S. & W..... 33⅓%
C. & C., Ratchet..... 25%
Reversible Ratchet Die Stocks.... 25%
Goodell Automatic Drills. 50&10&60&10%
Millers Falls Automatic Drills, Graves', per doz., Nos. 1, $4.86; 2, $8.16.
Millers Falls Automatic Drills. 33⅓&10%
Ratchet, Curtis & Curtis..... 25%
Ratchet, Parker's..... 40%
Ratchet, Weston's..... 40%
Ratchet, Weston's, Style H Improved ..... 40@40&5%
Ratchet, No. 012..... 40@40&5%
Ratchet, Celebrated..... 40@40&5%
Ratchet, Whitney's, P., S. & W.. 40&10@50%
Whitney's Adjustable, No. 10, $12.00, 33⅓%

Twist Drills—

Bit Stock ..... 70@70&10%
Taper and Straight Shank. 65@65&10%

Drivers, Screw—

Screw D'ver Bits, per doz. 45@50¢
Balsey's Screw Holder and Driver, ℔ doz., 2½-in., $6; 4-in., $7.50; 6-in., $9 ..... 50%
Buck Bros.' Screw Driver Bits..... 30%
Champion 50%
Disston's 70%
Elmore Tool Mfg. Co.:
Elmore 60%
Hartford 66⅔%
Indestructible ..... 55&7½%
Standard Neverturn..... 66⅔%
Star ..... 75&5%
Screw Driver Bits..... 25%
Fray's Hol. H'dle Sets, No. 3, $12.. 50%
Ford's Brace Screw Drivers.... 40&10%
Gay's Double Action Ratchet..... 35%
Goodell's Auto..... 65@65&10%
Mayhew's Black Handle..... 40%
Mayhew's Monarch..... 40%
Millers Falls, ℔ doz., Nos. 11, $9.95; 12, $13.73; 20, $8.17; 21, $8.46; 41, $13.43; 42, $17.21.
Swan's:
Nos. 7565 to 7568, 60%; No. 7540.. 40&10%

Eave Trough, Galvanized—

Territory.	*Gal. Steel.*	*Copper.*
Northeastern	75&10&5%	50&10%
Eastern	80%	50&10%
Central	80&10&5%	50&10%
Northwestern	80&10&5%	50&10%
Western	80&5%	50&5%
Tennessee	80&5%	50&10%
Southern	75&10%	50&5%
Southwestern	75&10&2½%	50&5%

Terms.—2% for cash. Factory shipments generally delivered.
Note.—Lower prices are quite general owing to market irregularities.
See also Conductor Pipe and Elbows.

Elbows and Shoes—

Factory shipments, all territories: Galv. Steel, Galv. C. I. and Copper.
Sizes 2, 3, 4 ..... 80%
Sizes 1½, 2½, 3½, 5, 6... 60&10%
No. 26 ..... 50%
No. 24 ..... 25%
Copper Elbows 50%

Elbows, Stove Pipe—

Edwards, Standard Blue....40&10&10%
Edwards, Royal Blue..... 40&10&10%
Reeves, Dover Flat Crimp..40&10&5%

Emery, Turkish—

	4 to 46:	5½ to 220:	Flour.
Kegs ..... *lb.*	5¢	5¼¢	9¼¢
½ *Kegs*..... *lb.*	5¼¢	5¾¢	5¾¢
¼ *Kegs*..... *lb.*	5½¢	6¢	6¢

10-lb. cans, 10 in case....6½¢ 7 ¢ 8 ¢
10-lb. cans, less than 10.....10 ¢ 10 ¢ 8 ¢
Less quantity..10 ¢ 10 ¢ 8 ¢
NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extensions, Bit—
Ford's Auger Bit Extensions....40&5%

Extractors, emon Juice—
—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's Jap'd and Galv., 50 & 5%; Bronze and Plated.....50%
Walling's 50%
Upson's Patent.....40%

Cord and Weight—
Ives, ₩ gro., $1.08.....10%
Titan, ₩ gro., $0.66.....10%

Corrugated—
Acme Corrugated Fasteners.....70%

Faucets—
Cork Lined.....50&10@60%
Metallic Key, Leather Lined, ..60&10@70%
Red Cedar.....40&5@40&10&5%
Petroleum .....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined..50%
John Sommer's Reliable Cork Lined..50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined..50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
Self Measuring:
Enterprise, Self Measuring and Pump, ₩ doz., $36.00.....40&10%
Lane's, ₩ doz., $36.00.....40&10%
National Measuring, ₩ doz, $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List Nov. 1, 1899.
Best Brands.....70&10@75&10%
Standard Brands.....75&10@80%
Lower Grade....75&10&10@80&10%
Gold Medal.....70%
McCaffrey's American Standard, 60&10&10%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97.....33⅓@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103; Special, No. 104 .....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 137.....60&10%

Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz.	*$3.60*	*3.85*	*4.15*	*4.65*

Peck, Stow & Wilcox Co.:

In.....	15	17	19	21	24	
	$4.00	4.40	4.75	5.50	6.50	....30%

Reading Hardware Co.....60%

Fodder Squeezers—
See *Compressors.*

Forks—
American Fork & Hoe Co.:
Iowa Dig-Ezy Potato.....70&5%
Hay, Regular, 3-tine.....45&20&12½%
Hay, Regular, 4-tine.....60&7½&5%
Champion, Hay.....60&12½%
Acme, Hay.....60&20%
Manure, Regular, 4-tine.....65&5%
Manure, Regular, 5 and 6 tine...70%
Champion, Manure.....65&5%
Columbia, Manure.....70%
Acme, 4-tine.....60&10&5%
Round Shoulder Header, 4-tine..65%
Champion, Header.....65%
Dakota, Header.....65%
Kansas Header.....65%
Wood, Barley.....35&5%
Steel, Barley.....65%
Columbia, Spading.....70&7½&5%

Frames— Wood Saw—
White, S'g't Bar, per doz.75@80¢
Red, S'g't Bar, per doz.$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.....	*1*	*2*	*3*	*4*	*6*
Each....	*$1.25*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*
Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped..3.65
Waterproof Dbl. Taped..4.40
Waterproof Tpl. Taped..5.15
} 10&2½&10%

Gates, Molasses and Oil—
Stebbins' Pattern.....80@80&5%

Gauges—
Marking, Mortise, &c..50@50&10%
Chapin-Stephens Co.:
Marking, Mortise, &c.....50&50&10%
Disston's Marking, Mortise, &c..67½%
Wire, Brown & Sharpe's.....33⅓%
Wire, Morse's.....25%
Wire, P. S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $1.00; 2, $1.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $1.30; 2, $1.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....65@65&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush, 25&10@50%
Elwell's 50%

Grease, Axle—
Common Grade...gro.$6.00@$6.50
Dixon's Everlasting, 10-lb. pails, ea. 85¢; in boxes, ₩ doz., 1 lb, $1.20; 2 lb.....$2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grinders—
Pike Mfg. Co.:
Hand and Foot Power, Pyko Nos. 1, 2, 3; Pyko Primo; Pyko Peerless; Pyko Spiral (foot power)..33⅓%
Mower Knife and Tool, $5.00..40&10%
Royal Mfg. Co.:
Hand and Foot Power, each, Nos. 01, $1.75; 1A, $2.50; 10, $5.00 .....33⅓%
Sickle Grinders, each, Nos. 20, $5.00; 20A, $6.00; 20A Combined, $6.50 .....40%
Disc Grinders, each, $2.50.....40%

Grindstones—
Pike Mfg. Co.:
Improved Family Grindstones, ₩ inch, ₩ doz., $2.00.....33⅓%
Richards Mfg. Co., Eli and Cycle, Ball Bearing, mounted.....40%

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Halters and Ties—
Cow Ties.....70&10%
Bridgeport Chain Co.:
Triumph Coil and Halters.35&2½@40%
Brown Coil and Halters...45@50&5%
Brown Cow Ties.....50&5@50&10&5%
Brown Tie Outs.....70&10@75&5%
Covert Mfg. Co.:
Web .....30&2%
Jute Rope.....35%
Sisal Rope.....20%
Cotton Rope.....45%
Hemp Rope.....45%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters...45@50&5%
Niagara Cow Ties.....45&5@50&10&5%

Hammers— Handled Hammers—
Heller's Machinists'....55&10@55&10&5%
Heller's Farriers.....40&5@40&10&5%
Peck, Stow & Wilcox Co.:
Crucible Steel.....40&10@50%
Farriers' .....40&10@50%
Riveting .....40&10@50%
Machinists' .....66⅔@5%
Blacksmiths' 50%
Elmore Shoemakers' Hammers.....75%
Fayatte R. Plumb:
A. E. Nail.....40&2½@40&12½%
Eng. and B. S. Hand.50&10&5@60&5%
Machinists' Hammers.....60&10&5%
Rivet and Tinners'.40&7½@40&12½&5%
Victor Magnetic Tack, ₩ gro....$7.75

Heavy Hammers and Sledges—
Under 3 lb., per lb., 50¢...80&10%
3 to 5 lb., per lb., 40¢...80&10&10%
Over 5 lb., per lb., 30¢.....
Over 5 lb., per lb., 30¢.80&10&10%

Handles—
Agricultural Tool Handles
Axe, Pick, &c....60&10@60&10&8%
Hoe, Rake, &c.....40%
Fork, Shovel, Spade, &c.:
Long Handles.....40%
D Handles.....40%

Cross-Cut Saw Handles—
Atkins' 40%
Champion 50%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted...gro.$3.00@$3.50
Brad Awl.....gro.$1.65@$1.75
Chisel Handles, Ass'd, per gro.:
Tanged Firmer, Apple, $2.40@$2.65; Hickory.....$2.15@2.40
Socket Firming, Apple, $1.75@$1.95; Hickory.....1.60@1.75
Socket Framing, Hickory, $1.60@$1.75
File, assorted.....gro.$1.30@$1.40
Hammer, Hatchet, &c., 60&10@60&10&5%
Hand Saw, Varnished, doz., 80¢ 85¢; Not Varnished.....65@75¢
Plane Handles:
Jack, doz., 30¢; Fore, doz....45¢
Chapin-Stephens Co.:
Carving Tool.....30@30&10%
Chisel .....60@60&10%
File and Awl.....60@60&10%
Saw and Plane.....30@30&10%
Screw Driver.....30@30&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle ....₩ gro. $2.25@$1.50

J. L. Osgood:
Indestructible File and Tool, ₩ gro., No. 1, $8.00; No. 2, $6.50; No. 3, $9.00; No. 4, $9.50; No. 5, $10.00.....gro. lots 10%

W. A. Zelnicker Supply Co.:
Hammer, ₩ doz., 12 in., $2.00; 14 in., $2.00; 16 in., $2.30; 18 12., $2.50; 20 in., $2.70; 22 in., $3.00; 24 in., $3.30; 26 in., $3.50; 30 in., $3.80.
Sledge, ₩ doz., oval, 30 in., $3.80; octagon, 30 in., $3.80; oval, 36 in., $4.00; octagon, 36 in., $4.00.
Axe, ₩ doz., 28 to 34 in., $5.60; 36 in., $5.80.
Adze, ₩ doz., 36 in., $5.80; 36 in., $7.80.
Pick, ₩ doz., R. R., 36 in., $8.00; coal, 34 in., $5.80.
Hatchet, ₩ doz., 12 to 14 in., $2.00.
} 50%

Hangers—
NOTE.—Barn Door Hangers are generally quoted per pair, without track and Parlor Door Hangers per double set with track, &c.
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%
Chisholm & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 10, $12.00..60&10%
Roller Bearing, No. 11, $15.00, 60&10%
Roller Bearing, Ex. Hy., No. 22, $18.00.....60&10%
Bull Dog, $24.00.....70%
Lane Bros. Co.:
Parlor, Ball Bearing, $4.00: Standard, $3.15; No. 105, $2.85; New Model, $2.80; New Champion per set of 4 Hangers, complete with track.....$2.25
Barn Door, Standard.....60&10%
Hinged .....net $6.08
Covered .....60&5%
Special .....70&5%
Trolley Hangers and track...50%
Lawrence Bros.:
Cleveland .....70&7½%
Clipper, No. 75.....60%
Crown .....55&10%
Cyclone, No. 40.....net $6.50
Tandem, No. 50.....net $7.50
New York.....55&10%
Trolley, No. 30, ₩ pair.....$1.25
McKinney Mfg. Co.:
Roller Bearing, Nos. 1 and 2..70%
Anti-Friction 60%
Hinged Hangers, King Charm.60%
Richards Mfg. Co.:
Hangers, Nos. 47, 48, 147, 247, 60&5%
Pioneer Wood Track, No. 3..$2.25
Roller B'r'g St'l Track No. 12.$2.20
Roller B'r'g St'l Track No. 13.$2.50
Roller B'r'g, Nos. 39, 41, 43, 70&7½%
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&5%
Trolley B. D. No. 17, $1.25; F. D. No. 120, $2.25; No. 121, $2.45; No. 150.....$2.50
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 41..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&5%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1....$2.25
Trolley B. D. No. 20.....50&10%
Trolley B. D. No. 24, $1.30; No. 27, $1.40; No. 28.....$1.60
Roller Bearings, Nos. 37, 38, 39, 41, 43, 44, Sizes 1 and 2.70&7½%
Anti-friction, No. 42; No. 44, sizes 2½ and 3.....60%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing, ₩ doz., 4 in., $12.00; 5 in., $14.00..40&10%
Myers' Stayon Hangers.....60%

Hangers— Garment—
Pullman Trouser, ₩ gro., No. 1 $9.00; No. 4, $24.00; No. 5, $16.50; No. 8, Black Enamel, $7.50; No. 10, $21.00; No. 12, $8.00; No. 15, Rods, $9.00; No. 18, Loops.....$10.00
Victor Folding.....₩ gro. $9.60

Gate—
Myers' Patent Gate Hangers, ₩ doz. net 50%

Joist and Timber—
Lane Bros. Co.....35%

Hasps—
Griffin's Security Hasp.....50&10%
McKinney's Perfect Hasp, ₩ doz..60%

Hatchets—
Regular list, first qual.50&10@60%
Second quality.....60@60&10%

Heaters, Carriage—
Clark, No. 5, $1.25; No. 5B, $1.50; No. 3, $1.75; No. 3D, $2.00; No. 7D, $2.25; No. 3E, $2.50; No. 1, $3.00.....25%
Clark Coal, ₩ doz., $0.75.....20%

Hinges—
Blind and Shutter Hinges
Surface Gravity Locking Blind:
Doz. Sets with Fastenings, No. 1, $0.70; No. 3, $1.25; No. 5, $2.65.
Mortise Shutter.....80%
Mortise Reversible Shutter...80%
North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.
Hale & Benjamin Automatic Blind Hinges 60%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....30%
Reading's Gravity.....60%
Stanley's Steel Gravity Blind Hinges, No. 1647½, ₩ doz. sets, without screws, $0.95; with screws, $1.25.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&5%
Acme, Lull & Porter.....75%
Queen City Reversible.....75%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&5%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&5%
Clark's O. P., No. 1.....75&10%
Clark's O. P., Nos. 3 and 5....75&5%
Tip Pat'n, No. 1.....75&10%
Clark's No. 3.....75&5%
Buffalo Gravity Locking, Nos. 1, 3 & 5.....70&10&5%
Shepard's Double Locking.....75%
Champion Gravity Locking.....75&5%
Pioneer .....75&10%
Empire 65%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60&10%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L't'chs.	*$2.00*	*2.70*	*5.00*
Hinges only.....	*1.25*	*1.90*	*3.50*
Latches only.....	*.70*	*.75*	*.35*

New England:
With Latch.....doz..@$2.00
Without Latch.....doz..@$1.60
Reversible Self-Closing:
With Latch.....doz..@$1.75
Without Latch...doz. ...@$1.35
Western:
With Latch.....doz. $1.75
Without Latch.....doz..$1.15
Wrightsville Hardware Co.:
Shepard's or Clark's Hinges and Latches, Hinges only or Latches only, Nos. 1, 2 or 3.....70%

Miscellaneous—
Griffin Mfg. Co., Fleur de Lis Surface Hinges, ₩ doz. prs.....$1.00

Pivot Hinges—
Bommer Bros. Pivot, Ball Bearing 40%
Lawson Mfg. Co. Matchless.....30%

Spring Hinges—
Holdback, Cast Iron...$6.75@$7.00
Non-Holdback, C'st Iron$6.50@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....40%
Bardsley's Patent Checking.33⅓%
Bommer Bros.:
Spring Butt Hinges.....40%
Surface Floor, Ball Bearing 40%
Mortise Floor, Ball Bearing.40%
Lavatory Hinges.....40%
Non-Holdback Screen Door, Nos. 2000 and 900.....40%
Holdback Screen Door, No. 999.....₩ gro, $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor.50%
Garden City Engine House...25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, ₩ gr., No. 14, $9.00; No. 18.....$25.00
Columbia, Adj., No. 7, ₩ gr.$12.00
Gem, new list.....30%
Clover Leaf and Acorn, per gro. $12.00
Oxford, new list.....30%
Floor Spring Hinges.....65&10%
Columbian Steel.....65&10%
Lawson Mfg. Co.:
Matchless Spring Hinges.....30%
Matchless Jamb Hinges.....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....₩ gr. $9.00
Chief Ball Bearings Floor Hinge 50%
Ball Bearing Door.....25%
No. 777, Sheet Steel Holdb'k, ₩ gr, pr.....$9.00
Standard Mfg. Co.:
Champion Double Acting Door Hinge .....25&10&10%
Standard Double Acting Floor Hinge .....25&10&10%
Superior Spring Hinge Co.:
Superior Floor Hinges.....40%
Spring Hinges.....40%
} Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—
Strap and T Hinges, &c., list February 10, 1908:
Light Strap Hinges....65%
Heavy Strap Hinges....75%
Light T Hinges.....60%
Heavy T Hinges....40&10%
Extra Hvy. T Hinges.65&10%
Hinge Hasps.....40%
Cor. Heavy Strap.....75%
Cor. Ex. Heavy T...65&10%
} Extra 10&7½&2½%.

Screw Hook and Strap. { *6 to 12 in..lb. 3½¢* / *1½ to 20 in..lb. 3¼¢* / *22 to 36 in..lb. 3 ¢*

Screw Hook and Eye:
¾ to 1 inch.....lb. 6¼¢
⅝-inch .....lb. 7½¢
½-inch .....lb. 8½¢

Hitchers, Stall—
Covert Mfg. Co., Stall Hitchers..30&2%

Hods— Coal—
M'f'gr's list, price per gross:

Inch	*15*	*16*	*17*	*18*
Galv. Open....	*$35*	*$39*	*$42*	*$46*
Jap. Open....	*26*	*28*	*31*	*35*
Galv. Funnel...	*49*	*48*	*52*	*56*
Jap. Funnel....	*33*	*36*	*39*	*43*

} 40&5%

Masons' Etc.
Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $1.05
Steel Mortar, No. 150.....each $1.35

Hoes— Eye—

Scovil and Oval Pattern, 60&10@60&10&10%
Grub, list Feb. 23, 1899, 70&10@70&10&10%
D. & H. Scovil....27½%
Am. Fork & Hoe Co. (Scovil Pattern)....60&5%

Handled—

Cronk's Weeding, No. 1, $2.00; No. 2, $2.50
Star Double Bit....$2.50
American Fork & Hoe Co.:
Regular, Cotton....75&10&5&2½%
Crescent, Cultivator....75&2½%
Mattock, Senior....70%
Mattock, Junior....70%
Sprouting....50%
Tobacco, Harper's....66⅔&15&10%
Warren....55&10&10&5%
Ivanhoe....65&15&10%
Cultivator, B B 6....70&10&10&5%
Cultivator, B B 6½....70&10&10&5%
Weeding, Acme....72½&10&2½%
Scuffle, Lightning....60&5%

Hoisting Apparatus—

See *Machines, Hoisting*

Holders— Bit—

Angular, ℔ doz. $24.00....45&10%

Door—

Bardsley's, Iron, 40%; Brass and Bronze....25%
Empire....50%
Pullman....25%
Richards Mfg. Co.: No. 117, Ever-ready, 40%; Nos. 118, 119, Sure Grip....50%
Superior....40%

File and Tool—

Nicholson File Holders and File Handles....33⅓@40%

Fruit Jar—

Triumph Fruit Jar Holder, ℔ gross, $18.00; ℔ doz....$2.00

Trace and Rein—

Fernald Double Trace Holder, ℔ doz. pairs....$1.25
Dash Rein Holder, ℔ doz....$1.25

Hones—Razor—

Pike Mfg. Co., Belgian and Swaty, 50%; German....33⅓%

Hooks—Cast Iron—

Bird Cage, Reading....40%
Clothes Line, Reading List....40%
Coat and Hat, Reading....45&20%
Coat and Hat, Wrightsville....60&5%
Harness, Reading List....40%

Wire—

Belt, Nos. 1 to 15....75&10@80%
Wire C. & H. Hooks..80@80&10%
Bradley Metal Clasp Wire, Coat and Hat, 75&10@80%; Ceiling..75&10@80%
Columbian Hdw. Co., Gem....75&10%
Parker Wire Goods Co., King..75&10%
Wire Goods Co.:
Acme, 60&10%; Chief, 70&10%; Crown, 75%; Czar, 65&10%; V Brace, 75%; Czar Harness, 50%; Ceiling, 75%.

Wrought Iron—

Box, 6 in., per doz., $0.90; 8 in., $1.15.
Cotton....doz. $1.25@$1.50
Wrought Staples, Hooks, &c.— See Wrought Goods.

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz., $6.20; Medium, $6.75; Heavy, $7.65
Grass, best, all sizes, per doz., $2.75@$3.00
Grass, common grades, all sizes, per doz....$1.25@$1.50
Whiffletree....lb. 5¼@6¢
Hooks and Eyes:
Brass....60@60&10%
Malleable Iron....70@70&10%
Covert Mfg. Co. Gate and Scuttle Hooks....40%
Turner & Stanton Co. Cup and Shoulder....85&10%
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—

See *Nails, Horse.*

Horseshoes—

See *Shoes, Horses.*

Hose, Rubber—

Garden Hose, ¾-inch:
Competition....ft. 6@6½¢
3-ply Guaranteed....ft. 8½@9¢
4-ply Guaranteed....ft. 9½@12¢
Cotton Garden, ¾-in., coupled:
Low Grade....ft. 8@ 9¢
Fair Quality....ft. 10@11¢

Irons— Sad—

From 4 to 10....lb. 2½@2¾¢
B. B. Bad Irons....lb. 3¼@3½¢
Mrs. Potts', cents per set:

	Nos. 50	55	60	65
Jap'd Caps	.86	93	96	98
Tin'd Caps	.91	88	1.01	98

New England Pressing..lb. 3¾@4¢

Bar and Corner—

Richards Mfg. Co., Bar, 60&10%; Corner....60%

Pinking—

Pinking Irons....doz. 60@65¢

Irons, Soldering

See *Coppers.*

Jacks, Wagons—

Covert Mfg. Co.:
Auto Screw....30&2%; Steel, 45%
Lockport....50%
Lane's Steel....30&5%
Richards' Tiger Steel, No. 130....50&10%
Smith & Hemenway Co.'s....25%

Ladder—

Richards Mfg. Co., Ladder Jacks..50%

Jointers—

Pike Mfg. Co., Saw Jointers, $7.00..40%

Kettles—

Brass, Spun, Plain....20@25%
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c....30%
Wilkinson Shear & Cutlery Co....60%

Corn—

Columbian Cutlery Co., Wilcut Brand Knives and Hooks....60%
American Fork & Hoe Co.:
Easy Cut, ℔ doz No. 10 C H...$2.10
Easy Cut, ℔ doz., No. 10 B C H.$2.20
Acme, ℔ doz....$2.35
Dent, ℔ doz....$2.35
Adjustable, Serrated, ℔ doz....$1.90
Serrated, ℔ doz....$1.85
Yankee, No. 1 C H....$1.35
Yankee, No. 2 C H....$1.15

Drawing—

Standard List....80&10@—%
C. E. Jennings & Co., Nos. 45, 46, 25&7½%
Jennings & Griffin, Nos. 41, 42, 66⅔&7½%
Swan's....66⅔@70%
Watrous....16⅔%
L. & I. J. White....20&5@25%

Hay and Straw—

Serrated Edge, per doz. $5.00@5.50
Iwan's Sickle Edge....℔ doz, $9.50
Iwan's Serrated....℔ doz. $10.00

Miscellaneous—

Farriers' ....doz. $2.60@3.55
Westenholm's ....℔ doz, $3.00@3.25

Knobs—

Base, 2½-inch, Birch or Maple, Rubber Tip....gro. $1.25@1.40
Carriage, Jap., Drive, all sizes, gro. 35@40¢
Door, Mineral....doz. 65@70¢
Door, Por. Jap'd....doz. 70@75¢
Door, Por. Nickel..doz. $2.05@2.15
Bardsley's Wood Door, Shutters, &c. 25%

Lacing, Leather—

See *Belting, Leather*

Ladders, Store, &c.—

Lane's Store....25%
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112....50%
Climax Shelf, No. 113....50%
Trolley, No. 109....50%

Ladles, Melting—

L. & G. Mfg. Co., Melting and Plumbers'....25%
P., S. & W....40&10%
Reading....60%

Lamps,—

Hammer's M. I. Hand....45%

Lanterns—Tubular—

Regular, No. 0....doz. $3.50@4.00
Side Lift, No. 0....doz. $4.00@4.50
Hinge Globe, No. 0. doz. $4.00@4.50
Other Styles....40@40&10%

Bull's Eye Police—

3-inch....$3.75@4.00

Latches— Thumb—

Roggin's Latches, Jap'd, with Screws....doz. 35@40¢

Door—

Cronk & Carrier Mfg. Co., No. 101, ℔ doz. $2.00
Richards' Bull Dog, Heavy, No. 125....50&5%
Richards' Trump, No. 127....$1.50

Leaders, Cattle—

Small....doz. 50¢; large, 60¢
Covert Mfg. Co.:
Cotton, 45%; Hemp, 45%; Jute, 35%; Sisal, 20%.

Leathers, Pump—

See *Pumps—*

Lifters, Transom—

R. & E....10%

Lines—

	Wire Clothes, Nos.	*18*	*19*	*20*
100 feet		*$2.30*	*1.95*	*1.75*
75 feet		*$1.95*	*1.65*	*1.50*

Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Solid Braided Masons'....30%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50....℔ gr. 20%
Masons' Lines, Shade Cord, &c.; White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50....20%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25....20%
Turner & Stanton Co.:
Solid Braided Chalk, Masons' and Awning Lines....40%
Clothes Lines, White Cotton....20%
Shade Cord, Cotton or Linen....20%

Locks— Cabinet—

Cabinet Locks....33⅓@33⅓@5%

Door Locks, Latches, &c.—

NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co....40%
R. & E. Mfg. Co....10%

Padlocks—

R. & E. Mfg. Co. Wrought Steel and Brass....75&10%

Sash, &c.—

Ives' Patent:
Crescent....10%
Automatic Gravity Metal Sash, ℔ gro., $149.58....10%
Window Ventilating....10%
Pullman Patent Ventilating Lock..25%
Reading Sash Locks....40%
Taylor Mfg. Co., Perfect Ventilating, ℔ doz....$0.75@$1.00

Machines—Boring—

Com. Upr't, without Augers, $2.00@2.25
Com. Angl'r, without Augers, $2.25@2.50
Ford Auger Bit Co....$22.00
Jennings', Nos. 1 and 4....25&7½%
Millers' Falls....5.75
Snell's, Upright, $2.65; Angular, $2.90
Swan's Improved....40&10%

Corking—

Reisinger Invincible Hand Power... ℔ doz. $48.00

Fence—

Williams' Fence Machines....each. $5.50

Hoisting—

Moore's Anti-Friction Chain Hoist.30%
Moore's Hand Hoist, with Lock Brake....20%
Moore's Cyclone High Speed Chain Hoist....25%

Ice Cutting—

Chandler's....12½%

Washing

Boss Washing Machine Co.:	Per doz.
Boss No. 1	$57.00
Boss Rotary	$57.00
Champion Rotary Banner No. 1	$57.00
Standard Champion No. 1	$50.00
Standard Perfection	$27.00
Cincinnati Square Western	$33.00
Uneeda American, Round	$33.00

Mallets—

Hickory....45&5@50%
Lignumvitæ....45&5@50%
Tinners' Hickory and Applewood....doz. 45&5@50%

Mangers, Stable—

Swett Iron Works....50%

Mats, Door—

Acme Flexible Steel....50%
Elastic Steel (W. G. Co.), new list.50%

Mattocks—

See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—

Enterprise Mfg. Co.:
Coffee....20@25%
Shell and Corn....25&10%
National list Jan. 1, 1902....30%
Parker's Columbia and Victoria..33⅓%
Parker's Box and Side....50&10%
Swift, Lane Bros. Co....30%

Motors, Water—

Divine's Red Devil....30%

$2.50	3.50	19.00	15.00....33⅓%
No. 1	2	3	4

Lippincott's:

No.	1	2	3	4	
	$2.50	3.50	10.00	15.00	..33⅓%

Pike Mfg. Co., Tool and Knife Grinding....33⅓%

Mowers, Lawn—

NOTE.—Net prices are generally quoted
Cheapest, 10-in., $2.00; advance 10¢ for each size.
Cheap, 10-in., $2.25; advance 15@20¢ for each size.
Better Grade, 10-in., $3.00; advance 25¢ for each size.

	12	*14*	*16*	*18-in.*
High Grade...	*$4.50*	*4.75*	*5.00*	*5.25*

Continental....60%
Great American....70%
Great American Ball B'r'g, new list.70%
Quaker City....70%
Pennsylvania....60%
Pennsylvania, Jr., Ball Bearing, 50&10&5%
Pennsylvania Golf....50%
Pennsylvania Horse....33⅓&5%
Pennsylvania Pony....40&5%

Nails—

Wire Nails and Brads, Miscellaneous....85&5@85&10%
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers', &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	.. ℔ lb. net, 12¢
Coleman	13	12	12	11	11	net ℔ lb
New Haven..	23	21	20	19	18	.. ℔ lb. net, 12¢
Livingston	19	18	17	16	16	....10%
Western						℔ lb 8½¢

Jobbers' Special Brands, per lb. 9¢

Picture—

	1½	2	2½	3 in.
Brass Hd. gro.	*.45*	*.55*	*.60*	*.70*
Por. Head, gro.	*1.10*	*1.10*	*1.10*	

Upholsters—

Brass....80%
Plated....30&10%

Nippers—

See *Pliers and Nippers.*

Nipples—

Standard Nipple Co.:
Wrought Pipe Nipples....80%

Nuts— *Blank or Tapped.*

Cold Punched:	*Off list.*
Square	*5.40¢*
Hexagon	*6.00¢*
Square, C., T. & R.	*5.80¢*
Hexagon, C., T. & R.	*6.60¢*
Hot Pressed:	Off list.
Square	*5.90¢*
Hexagon	*6.40¢*

Oakum—

Best....lb. 6½¢
U. S. Navy....lb. 6 ¢
Navy....lb. 5 ¢
Plumbers' Spun Oakum..2¾@3 ¢

Oil—

Pike Mfg. Co., Stonoil....40%

Oil Tanks—See *Tanks, Oil.*

Oilers—

Steel, Copper Plated....75&10%
Chase or Paragon:
Brass and Copper....50&10%
Zinc....65&10@70%
Railroad....60&10&10%
American Tube & Stamping Co.:
Spring Bottom Cans....70@70&10%
Railroad Oilers, &c....60@60&10%
Hero Fruit Jar Co.:
Spring Bottom Cans....70@70&10%
Railroad Oilers, etc....60@60&10%
Malleable, Hammers' Improved, Nos. 11, 12 and 13, 10%; Old Pattern, Nos. 1, 2, 3, 4, 50%.
Maple City Mfg. Co.:
Spring Bottom Cans....70@70&10%
Railroad Oilers, &c....60@60&10%

Openers—Packing Box—

Herculever, ℔ doz. $24....30%

Can Openers—

	Per doz.
Sprague, Iron Handle....	*30@35¢*
Sprague, Wood Handle....	*40¢*
Sardine Scissors....	*$1.75@3.00*

Can and Bottle Openers, ℔ doz., net: Yankee, $0.75@$0.85; Little Gem, $0.50@$0.65; Nifty....$0.75

Egg—

Hartigan Nickel Plate, ℔ doz., $2.00; Silver Plate, $4.00.

Packing—

Asbestos Packing, Wick and Rope, any quantity....16@17¢

Rubber—

(Fair quality goods.)
Sheet, C. I....11@12¢
Sheet, C. O. S....11@12¢
Sheet, C. B. S....12@13¢
Sheet, Pure Gum....40@45¢
Sheet, Red....40@50¢
Jenkins' '96, ℔ lb. 30¢....25%

Miscellaneous—

American Packing....lb. 7@10 ¢
Cotton Packing....lb. 16@25 ¢
Italian Packing....lb. 9@10¢
Jute....lb. 4@4¼¢
Russia Packing....lb. 9@10¢

Pails, Water, Well, &c.—

See *Buckets.*

Paint—

Dixon's Silica-Graphite, in 1 gal. pails and 5 gal. kegs, 25%; packages of larger size....20%

Pans— Dripping—

Standard List....75&5@75&10%
Edwards, Royal Blue....75%

Fry—

Common Lipped:

Nos....	*1*	*2*	*3*	*4*	*5*
Per doz....	*$0.75*	*0.85*	*0.95*	*1.15*	*1.30*

Refrigerator, Galva.—

Inch....	*12*	*14*	*16*	*18*
Per doz....	*$1.75*	*2.25*	*2.80*	*3.15*

Paper—Building Paper

Asbestos: lb.
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft..2½¢
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lb., per 100 sq. ft....3½¢
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in....3½¢

Per roll.

Rosin Sized Sheathing: 500 sq. ft.
Light weight, 25 lbs. to roll, 48@58¢
Medium weight, 30 lbs. to roll, 58@70¢
Heavy weight, 40 lbs. to roll, 75@78¢
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb., ton....$54.50
Red Rope Roofing, 250 sq. ft. per roll....$1.75

Tarred Paper—

1 ply (roll 400 sq. ft.), ton. $34.00@$38.00
2 ply, roll 108 sq. ft....65¢
3 ply, roll 108 sq. ft....88¢
Slater's Felt (roll 500 sq. ft.) 80¢

Sand Paper and Cloth—

Flint and Emery....50&10%
Garnet Paper and Cloth....25%

Parers—Apple—

Goodell Co.:

Family Bay State	℔ doz.	$15.00
Improved Bay State	℔ doz.	$36.00
New Lightning	℔ doz.	$7.00
Turn Table '98	℔ doz.	$8.00
White Mountain	℔ doz.	$5.00
Bonanza Improved	each	$7.50
Dandy	each	$10.00
Eureka Improved	each	$20.00
New Century	each	$20.00
Ranger	each	$30.00

Livingston Nail Co.:
Daisy ..... ℔ doz. $4.00
Little Star ..... ℔ doz. $5.00
Rocking Table ..... ℔ doz. $6.20
Reading Hardware Co.:
Advance ..... ℔ doz. $4.00
Baldwin ..... ℔ doz. $4.00
Reading 72 ..... ℔ doz. $3.25
Reading 78 ..... ℔ doz. $6.25

Orange—
Goodell Co., Success ..... each $20.00

Potato—
Saratoga ..... ℔ doz. $7.00
White Mountain ..... ℔ doz. $6.00

Picks and Mattocks—
(List Jan., 1908.)
List ..... 75&10%
Cronk's Handled Garden Mattock, ℔ doz., $3.00 ..... 33⅓%

Pinking Irons—
See *Irons, Pinking.*

Pins, Escutcheon—
Brass ..... 50@50&10%
Iron, list Nov. 11, '85 .. 60@60&10%

Pipe, Cast Iron Soil—
Eastern Prices:
Standard, 2-6 in. 68%
Extra Heavy, 2-6 in. 74%
Fittings, Standard and Heavy 89¾%
Extra 10 & 10&5%

Pipe, Merchant—
Carloads to Consumers:

	Steel. Blk.	Steel. Galv.	Iron. Blk.	Iron. Galv.
	%	%	%	%
⅛ and ¼ in..				
⅜ in.....				
½ in.....				
¾ to 6 in....				
7 to 12 in....				

See Trade Report

Pipe, Vitrified Sewer—
Carload lots.
Standard Pipe and Fittings, 8 to 24 in., f.o.b. factory:
First-class 87%
Second-class 90%

Pipe, Stove—

	Per 100 joints. C. L.	L. C. L.
Edwards' Nested:		
5 in., Standard Blue	$6.25	$7.25
6 in., Standard Blue	6.75	7.75
7 in., Standard Blue	7.75	8.75
5 in., Royal Blue	7.00	8.00
6 in., Royal Blue	7.50	8.50
7 in., Royal Blue	8.50	9.50
Wheeling Corrugating Co.'s Nested:		
5 in., Uniform Color	5.90	6.90
6 in., Uniform Color	6.40	7.40
7 in., Uniform Color	7.40	8.40

Planes and Plane Irons—
Wood Planes—
Bench, first qual ..... 30@30&5%
Bench, second qual ..... 40@40&5%
Molding ..... 25@25&5%
Chapin-Stephens Co.:
Bench, First Quality 30%
Bench, Second Quality 40%
Molding and Miscellaneous 25%
Toy and German 30%
Union 60%

Iron Planes
Chaplin's Iron Planes 60%
Union 60%

Plane Irons—
Wood Bench Plane Irons, list Dec. 12, '06 ..... 85%
Buck Bros. 30%
Chapin-Stephens Co. 25%
Union 50%
L. & I. J. White ..... 20&5@25%

Planters, Corn, Hand—
Kohler's Eclipse ..... ℔ doz. $7.50

Plates—
Felloe ..... lb. 3¾@4¼¢
Avery Stamping Co.:
Standard Wrot. Steel Felloe Plates in 100 lb kegs, per 100 lb, ¾-in. to 1¼-in., $4.00 net; 1¼-in. to 2-in., inclusive, $3.75 net.

Steel Pipe Hook—
Never-Break ..... 75&10%

Pliers and Nippers
Button Pliers .... 75&5@75&10&5%
Gas Burners, per doz., 5 in., $1.25 @$1.30; 6 in., $1.45, $1.50.
Gas pipe .. 7 / $2.00 ; 8 / $2.25 ; 10 / $2.75 ; 12-in. / $3.50
Acme Nippers ..... 50&5%
Cronk & Carrier Mfg. Co.:
American Button 80%
Improved Button ..... 75&10%
Cronk's 60%
No. 80 Linemen's 50%
Stub's Pattern 45%
Combination and others 33⅓%
E'more Tool Mfg. Co.:
Gas Pliers 70%
Wire and Cutting Pliers 75%
Heller's Farriers' Nippers, Pincers and Tools ..... 40&5@40&10&5%
P., S. & W. Tinners' Cutting Nippers 40%
Swedish Side, End and Diagonal Cutting Pliers 50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%

Plumbs and Levels—
Chapin-Stephens Co.:
Plumbs and Levels ..... 30@30&10%
Chapin's Imp. Brass Cor. 40@40&10%
Pocket Levels ..... 30@30&10%
Extension Sights ..... 30@30&10%
Machinists' Levels ..... 40@40&10%
Disston's Plumbs and Levels .... 60&10%
Disston's Pocket Levels ..... 60&10%
Stanley's Dulex 35%
Woods' Extension 33⅓%

Points, Glaziers'—
Bulk and 1-lb. papers .... lb. 9 ¢
¼-lb. papers ..... lb. 9½¢
⅛-lb. papers ..... lb. 16 ¢

Police Goods—
Manufacturers' Lists .. 25@25&5%
Tower's 25%

Polish—Metal, Etc—
Ladd Co.:
Putzade Liquid, ℔ gro., ½ pts., $12.00; 1 pts., $20.00; 1 qts., $40.00; ℔ doz., ½ gals., $6.35; 1 gals., $12.00.
Prestoline Liquid, No. 1 (⅛ pt.), ℔ doz., $3.00; No. 2 (1 qu.), $9.00 .. 40%
Prestoline Paste 40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ℔ doz. 50¢; ℔ gro., $4.50; ⅛ lb boxes, ℔ doz., $1.25; 1 lb boxes, ℔ doz. $2.25.
U. S. Liquid, 8 oz. cans, ℔ doz., $1.25.
Barkeepers' Friend Metal Polish, ℔ doz., $1.75.

Stove—
Black Eagle Benzine Paste, 5 lb cans, ℔ lb 10¢
Black Eagle, Liquid, ½ pt. cans.. ℔ doz. 75¢
Black Jack Paste, ¾ lb cans, ℔ gr. $9.00
Black Kid Paste, 5 lb can .... each, $0.65
Ladd's Black Beauty Liquid, per 100 tins $6.75
Joseph Dixon, ℔ gr. $5.75 ..... 10%
Dixon's Plumbago ..... ℔ lb 8¢
Fireside ..... ℔ gr. $2.50
Gem, ℔ gr. $1.50 ..... 10%
Japanese ..... ℔ gr. $3.50
Jet Black ..... ℔ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ℔ doz. $1.50

Window Polish—
Benj. P. Forbes:
Glasbright, No. 2, gal pails, ℔ doz., $24.00; each, $2.50; 1 lb cans, each ..... 75¢
Glasbright Powder, bbls., ℔ lb .. 20¢

Poppers, Corn—
1 qt. Square . . doz. $0.80 ; gro. $8.75
1 qt. Round . . doz. $0.90 ; gro. $10.00
1½ qt. Square . doz. $1.20 ; gro. $12.00
2 qt. Square . . doz. $1.50 ; gro. $15.00

Post Hole and Tree Augers and Diggers—
See also *Diggers, Post Hole, &c.*

Posts, Steel—
Steel Fence Posts, each, 6 ft., 46¢; 6½ ft., 48¢; 7 ft., 50¢.
Steel Hitching Posts ..... each $1.30

Potato Parers—
See *Parers, Potato.*

Pots, Glue—
Enameled 40%
Tinned ..... 30&10%

Powder—
Black Sporting:
Kegs (25 lb.) .. $5.00@5.50
Half Kegs (12½ lb.), $2.75@3.00
Quarter Kegs (6¼ lb.), $1.50@1.65
Canisters, pounds ... .25
Canisters, ½ pounds . .15
Canisters, ¼ pounds . .12
Discount to the trade, 10%.
NOTE.—Prices vary according to territory.
King's Semi-Smokeless:

Keg (25 lb bulk)	$6.50
Half Keg (12½ lb bulk)	$3.50
Quarter Keg (6¼ lb bulk)	$1.90
Case 24 (1 lb cans bulk)	$8.50
Half case (1 lb cans bulk)	$4.50

King's Smokeless:	Shot Gun.	Rifle.
Keg (25 lb bulk)	$12.00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17.00
Half case 12 (1 lb c. bk)	7.25	8.75

Presses—
Fruit, Wine and Jelly—
Enterprise Mfg. Co. ..... 20@25%

Seal Presses—
Morrill's No. 1, ℔ doz., $20.00 ..... 50%

Pruning Hooks and Shears
See *Shears.*

Pullers, Nail, Etc.—
Cyclops 50%
Elmore Tool Mfg. Co.:
Drop Forged Tack Pullers 10%
Nail Pullers 40%
Miller's Falls, No. 3, ℔ doz., $12.00 .. 33⅓&10%
Morrill's No. 1, Nail Puller, ℔ doz. $20.00 ..... 50%
Pearson No. 1, Cyclone Spike Puller, each $30.00 ..... 50%
The Scranton Co, Case Lots:
No. 2B (large) $5.50
No. 3B (small) $3.00
Smith & Hemenway Co.:
Diamond B 70%
Giant 50%
Staple Pullers, Utica and Davison 60%
Taylor Mfg. Co., Sampson Tack, ℔ doz. $0.40

Pulleys, Single Wheel—

Inch	1½	1¾	2	3
Awning or Tackle, doz	$0.30	.45	.60	1.05
Hay Fork, Swivel or Solid Eye, doz., ¼ in., $1.25 ; 5 in., $1.55				
Inch	2	2¼	2½	
Hot House, doz ...	$0.65	.85	1.20	
Inch	1¼	1¼	1¾	2
Screw, doz	$0.16	.19	.23	.30
Inch	1¾	2	2¼	2½
Side, doz	$0.25	.40	.55	.60
Inch	1½	1¾	2	2½

Sash Pulleys—
Common Frame; Square or Round End, per doz., 1¾ and 2 in ..... 17@20¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in .... 20@21¢
Acme, No. 35..1¾ in., 19¢; 2 in., 20½¢
American Pulley Co.:
Wrought Steel American Plain Axle ..... 50&10%
Wrought Steel, Eagle, ℔ doz., 1¾ in., 17¢; 2 in., 20¢; 2¼ in. ..... 27¢
Top Notch, Electrically Welded, Nos. 3 and 4, ℔ doz. ..... 19¢
Common Sense ..... ℔ doz. 20¢
Merit ℔ doz., 2¼ in. ..... 37¢
Fox-All-Steel, Nos. 3 and 7, 2 in.... ℔ doz. 50%
Grand Rapids All Steel Noiseless .. 50%
Niagara, No. 25, 1¾ in., 19¢; 2 in. ..... 20½¢
No. 26 Troy..1¾ in., 14½¢; 2 in., 16½¢
Star, No. 26....1¾ in., 19¢; 2 in., 20½¢
Tackle Blocks—See Blocks.

Pumps—
Cistern 60%
Pitcher Spout ..... 75&10&5@80
Wood Pumps, Tubing, &c 50%
Barnes Dbl. Acting (low list) 50%
Barnes Pitcher Spout 80%
Contractors' Rubber Diaphragm, No. 2, B. & L. Block Co $16.00
Daisy Spray Pump ..... ℔ doz. $6.50
Flint & Walling's Fast Mail Hand (low list) ..... 50&5%
Flint & Walling's Fast Mail (low list) ..... 50&5%
Flint & Walling's Tight Top Pitcher 80%
National Specialty Mfg. Co., Measuring, Nos. 2, $6.00; 3, $5.50 ..... 30%
Myers' Pumps (low list) 50%
Myers' Power Pumps 50%
Myers' Spray Pumps 50%

Pump Leathers—
Plunger and Valve Leathers—Per gro.:

No.	1	2	3	4
	$5.00	6.00	7.00	8.00

25%@30&5%

Cup Leathers—Per 100:

Inch.	2½	3	3½	4
	$5.00	7.00	9.00	12.00

25%@30&5%

Punches—
Saddlers' or Drive, good, doz. .50@75¢
Spring, single tube, good quality $1.75
Revolving (½ tubes) .... *doz.* $3.50
Bemis & Call Co.'s Cast St'l Drive. 50%
Elmore Tool Mfg. Co.:
Machinists' Center 40%
Tinners': Solid, 50%; Prick 50%
Morrill's Nos. 1AA, 1A, 1B, 1C, 1D, $15.00 ..... 50%
Hercules, 1 die, each $5.00 ..... 50%
Niagara Hollow Punches 40%
Niagara Solid Punches ..... 55&10%
Tinners' Hollow, P., S. & W. Co. .. 40%
Tinners' Solid, P., S. & W. Co., ℔ doz., $1.44 ..... 40&10%

Rail—Barn Door, &c.—
Sliding Door, Painted Iron, 2½@2¾¢
Sliding Door, Wrought Brass, 1⅛ in., lb., 36¢ 30%
Cronk's:
Double Braced Steel Rail .. ℔ ft. 2¾¢
O. N. T. Rail ..... 2¾¢
Griffin's:
xxx, ℔ 100 ft., 1 x 3-16 in., $3.25; 1¼ x 3-16 in., $3.75.
Hinged Hanger, ℔ 100 ft., 1 x 3-16 in., $3.50; 1¼ x 3-16 in., $4.00.
Lane's:
Hinged Track, ℔ 100 ft. $3.45
O. N. T., ℔ 100 ft., 1 in., $3.12½; 1¼ in., $3.45; 1½ in., $4.00.
Standard, 1¼ in. ..... ℔ 100 ft. $4.00
Lawrence Bros.:
1 x 3-16 in., ℔ 100 ft., $7.50; 1¼ x 3-16 in., $8.75 ..... 55&7½%
Trolley, No. 301, ℔ ft. ..... 9¢
McKinney's:
Hinged Hanger Track, ℔ ft., 11¢ ..... 60&5%
1 x 3-16 Track ..... 55&7½%
Myers' Stayon Track ..... 60&5%
Richards Mfg. Co.:
Common, 1 x 3-16 in., $3.00; 1¼ x 3-16, $3.25; 1¼ x 3-16, $3.50.
Special Hinged Hanger Rail .. 60&10%
Lag Screw Rail, No. 65 ..... 50%
Gauge Trolley Track, ℔ ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢.
No. 59 ..... 60&10%
Nos. 61, $3.00; 62, $3.25; 63, $3.50; 64, $4.00; 45, $3.25; 46, $3.50; 49, No. 1, $3.25; 49, No. 2, $3.50.

Rakes—
NOTE.—Many goods are sold at net prices.
American Fork & Hoe Co.:
Lawn, ℔ doz., No. 24, $2.50; No. 20 ..... $2.25
Cronk's:
Steel Garden: Champion, ℔ doz., 12-tooth, $3.75; 14-tooth, $4.00; 16-tooth, $4.25; Ideal, ℔ doz., 12-tooth, $3.00; 14-tooth, $3.30; 16-tooth, $3.60.
Victor, 12-tooth, $2.25; 14-tooth, $2.50; 16-tooth, $2.75.
Queen City Lawn, ℔ doz., 20 teeth, $2.85; 24, $3.00 ..... net
Anticlog Lawn, ℔ doz. $4.00
Malleable Garden ..... 70&10%
Ideal Steel Garden, ℔ doz., 12 teeth, $15.00; 14, $16.00; 16, $18.00 ..... 80%
Kohler's:
Jumbo Lawn, 26-tooth .... ℔ doz. $5.00
Lawn Queen, 20-tooth .... ℔ doz. $2.85
Lawn Queen, 24-tooth .... ℔ doz. $3.00
Paragon, 20-tooth ..... ℔ doz. $2.65
Paragon, 24-tooth ..... ℔ doz. $2.75
Steel Garden, 14-tooth .... ℔ doz. $2.40
Malleable Garden, 14-tooth, ℔ doz. $1.75@2.00

Rasps, Horse—
Disston's 75%
Heller Bros. ..... 70&5@70&10&5%
Liveright Bros.' Gold Medal. 70&10@75%
McCaffrey's American Standard ..... 60&10&5%
New Nicholson ..... 70&10@75%
See also Files.

Razors—
John Engstrom Swedish 65%
Sharp Shaver 60%
Fox Razors, ℔ doz., No. 42, $24.00; No. 44, $20.00; No. 82, Platina, $36.00. *Discount 50%*

Reels, Fishing—
Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4008, Rubber, Populo, Nickeled Populo 20%
Aluminum, German Silv., Bronze, 1240 N, 124 N 20%
3004 N, 06 N, 6 RM, G 9 ..... 25%
4 N, 6 PN, 24 N, 26 PN 20%
2904 P, 33⅓%; 2904 PN., 33⅓%; 0924 N., 33⅓%; 02084 N., 33⅓%; 002904 PN., 33⅓%; 802 N., 33⅓%; 986 PN, 2904 N, 974 PN 25%
5009 PN, 5009 N 20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR 20%
304 P, 304 PN, 00304 P, 00304 PN .. 33⅓%

Registers—*List July 1, 1903.*
Japanned, Electroplated and Bronzed 70%
White Porcelain Enamel .. 50&10%
Solid Brass or Bronze Metal . 40%

Revolvers—
Single Action ..... $5¢@$1.00
Double Action, except 44 cal . $2.00
Double Action, 44 caliber ... $2.00
Automatic $4.00
Hammerless $4.50

Riddles, Hardware Grade
16 in. ..... *per doz.* $2.50@$2.75
17 in. ..... *per doz.* $2.75@$3.00
18 in. ..... *per doz.* $3.00@$3.25

Rings and Ringers—
Bull Rings—

	½	2½	3 inch.
Steel	$0.70	0.75	0.80 doz.
Copper	$1.10	1.25	1.65 doz.

Hog Rings and Ringers—
Hill's Rings, per gro. boxes, $4.60@$4.75; per doz. boxes, 40@45¢
Hill's Ringers, Gray Iron, doz., 55@65¢
Hill's Ringers, Malleable Iron, doz. 85@95¢
Blair's Rings . . per gro. $5.50@$6.00
Blair's Ringers . . per doz. 65@70¢

Rivets—
Copper Rivets and Burrs 50%
Tinners' and Miscellaneous Rivets ..... 80@80&10%

Bifurcated and Tubular—
Assorted in Pasteboard Boxes.
Bifurcated, per dozen boxes, 50 count, 40@45¢; 100 count, 50@63¢.
Tubular, per doz. boxes, 50 count, 60@68¢; 100 count, $1.12@$1.26.

Rollers—
Cronk's Stay, No. 50 ..... $1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56, $0.75; No. 60 ..... $0.75
Lane's Stay 40%
Richards' Stay:
Handy Adj. and Reversible No. 53 .. 75¢
O. K. Adj. and Reversible No. 58 .. 50¢
Lag Screw, Nos. 55 and 57 ..... 50%
Underwriters', Nos. 59, 60 ..... 50%
Favorite, No. 54 ..... 60%

Rope—
Manila, 7-16 in. diam. and larger:
Pure ..... lb. 8½@8¾¢
Sisal, 7-16 in. diam. and larger:
Pure ..... lb. 6¾@7¢
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse:
Pure ..... lb. 7¼@7¼¢
Sisal, Tarred, Medium Lath Yarn:
Pure ..... lb. 6¼@6½¢
Cotton Rope:
Best, ¼-in. and larger . 16½@18¢
Medium, ¼-in. and larger . 15@16¢
Common, ¼-in. and larger . 7½¢
In coils, ½¢ advance.
Jute Rope:
Thread, No. 1, ¼-in. and up, lb. ..... 5½¢
Thread, No. 2, ¼-in. and up, lb. ..... 5¢

Wire Rope—
Galvanized ..... 47½&2½%
Plain ..... 55&2½%

Ropes, Hammock—
Covert Mfg. Co.:
Jute, 35%; Sisal 20%

Rules
Boxwood ..... 60&5%
Ivory ..... 25&5%
Chapin-Stephens Co.:
Boxwood 60%
Flexifold 40%
Ivory ..... 25@25&10%
Miscellaneous ..... 50@50&10%
Stephens' Combination 55%
Stationers' ..... 50@50&10%
Keuffel & Esser Co.:
Folding, Wood ..... 35&10%
Folding, Steel ..... 33⅓&10%
Lufkin's Steel ..... 50&10%
Lufkin's Lumber ..... 50&10%
Unson Nut Co.:
Boxwood ..... 60@60&10%
Ivory ..... 35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—
Atkins':
Circular 45%
Band ..... 50@50&10%
Butcher Saws 50%
Cross Cuts 35%
One-Man Cross Cut 40%
Narrow Cross Cut 50%
Hand, Rip and Panel ..... 35&5%
Miter Box and Compass 40%
Mulay, Mill and Drag 45%
Wood Saws ..... 40&10%
Chapin-Stephens Co.:
Turning Saws and Frames ..... 30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws ..... 30&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth 50%
Band, 2 to 18 in, wide 60%
Band, ¼ to 1¾ 60%
Crosscuts 45%
Narrow Crosscuts 50%
Mulay, Mill and Drag 50%
Framed Woodsaws 25%
Woodsaw Blades 25%
Woodsaw Rods, Tinned 15%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8 ..... 25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination 30%
Compass, Key Hole, &c 25%
Butcher Saws and Blades 30%
C. E. Jennings & Co.'s:
Back Saws 16⅔%
Butcher Saws ..... 25&7½%
Compass and Key Hole Saws, ... 33⅓&7½%
Framed Wood Saws ..... 25&7½%
Hand Saws 12½%
Wood Saw Blades ..... 33⅓&7½%
Millers Falls:
Butcher Saws ..... 15&10%
Star Saw Blades ..... 15&10%
Massachusetts Saw Works:
Victor Kitchen Saws ..... 40&10&50%
Butcher Saws Blades ..... 35@40%
Peace & Richardson's Hand Saws 30%
Simonds':
Circular Saws 45%
Crescent Ground Cross Cut Saws 30%
One-Man Cross Cuts ..... 40&10%
Gang Mill, Mulay and Drag Saws 45%
Band Saws 50%
Back Saws ..... 25@25&7½%
Butcher Saws ..... 35@35&7½%
Hand Saws ..... 25@25&7½%
Hand Saws, Bay State Brand 45%
Compass, Key Hole, &c ..... 25@25&7½%
Wood Saws ..... 40&7½%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws 50%

Hack Saw Blades and Frames—
Atkins' Hack Saw Blades A A A 25%
Disston's:
Concave Blades 25%
Keystone Blades 35%
Hack Saw Frames 30%
Simonds, 25%; The Best, 35%; Culley 35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180 ..... 40&7½%
Hack Saws, Nos. 175, 180, complete, ... 40&7½%
Goodell's Hack Saw Blades ..... 40&10%
Griffin's Hack Saw Frames ..... 35&5&10%
Griffin's Hack Saw Blades ..... 35&5&10%
Star Hack Saws and Blades ..... 15&10%
Sterling Hack Saw Blades ..... 30&10&5%
Sterling Hack Saw Frames ..... 30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00 ..... 10%
Victor Hack Saw Blades 20%
Victor Hack Saw Frames 40%
Whitaker Mfg. Co.:
National Hand Blades, Hand Frames, Power Blades 40%

Scroll—
Barnes, No. 7, $15 ..... 25%
Barnes' Scroll Saw Blades 40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20 ..... 20%
Lester, complete, $10.00 ..... 15&10%
Rogers, complete, $3.50 and $4.00 ..... 15&10%

Scales—
Union Platform, Plain ..... $2.10@2.20
Union Platform, Stpd ..... $2.20@2.30
Chatillon's:
Eureka 25%
Favorite 40%
Grocers' Trip Scales 50%
The Standard Portables 40%
The Standard R. R. and Wag-

Scrapers—
Box, 1 Handle ..... doz. $1.85@2.10
Box, 2 Handle ..... doz. $2.35@2.50
Ship ... Light, $2.00; Heavy, $4.50
Chapin-Stephens Co., Box ..... 30@30&10%
Richards Mfg. Co., Foot 60%

Screws—Bench and Hand
Bench, Iron, doz., 1 in., $2.50@ 2.75; 1¼, $3.00@3.25; 1¼, $3.50@3.75
Bench, Wood ..... 20@20&10%
Hand, Wood ... 70&10@70&10&10%
Chapin-Stephens Co., Hand ..... 70@70&10&2½%

Coach, Lag and Hand Rail—
Lag, Cone Point ..... 80&10%
Coach, Gimlet Point ..... 80&5%
Hand Rail ..... 70&10@75%

Jack Screws—
Standard List ..... 70&10@75%
Millers Falls ..... 50&10&10%
Swett Iron Works ..... 70@75%

Machine—
Cut Tread, Iron, Brass or Bronze:
Flat Head or Round Head, ... 50@50&10%
Fillister Head ..... 40@40&10%
Rolled Thread, F. H. or R. H., Iron ..... 75&10%
F. H. or R. H., Brass, Nos. 8 to 14 ..... 65&10%

Set and Cap—
Set (Iron) ..... 75&10&7½%
Set (Steel), net advance over Iron 25%
Sq. Hd. Cap ..... 70&10&7½%
Hex. Hd. Cap ..... 70&10&7½%
Rd. Hd. Cap ..... 50&7½%
Fillister Hd. Cap ..... 60&7½%

Wood—
List July 23, 1903.
Flat Head, Iron ..... 87½&5@..%
Round Head, Iron ..... 85&5@..%
Flat Head, Brass ..... 80&5@..%
Round Head, Brass ..... 77½&5@..%
Flat Head, Bronze ..... 75&5@..%
Round Head, Bronze ..... 72½&5@..%
Drive Screws ..... 87½&5@..%

Scroll Saws—
See *Saws, Scroll.*

Scythes—
Per doz.
Plain Grass, Cutting Edge Polished ..... $6.25@$6.50
Clipper, Bronzed Web ..... $6.50@$6.75
Solid Steel, Web and Backs Polished ..... $7.00@$7.25
Bush, Weed and Bramble, Painted ..... $6.50@$6.75
Grain, Painted, Cutting Edge Polished ..... $8.25@$8.50
Clipper Grain, Bronze Web, ... $8.50@$8.75

Seeders, Raisin—
Enterprise ..... 25@30%

Sets— Awl and Tool—
Fray's Tool Handles, Nos. 1, $12; 2, $16; 3, $12 ..... 50%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18 ..... 20&10%

Garden Tool Sets—
American Fork & Hoe Co.:
Rake, Shovel and Hoe, ₱ doz. sets, No. 3, P F $7.25

Sets, Nail—
Octagon ..... gro. $3.50@3.75
Buck Bros. 2½%
Elmore Tool Mfg. Co. 30%
Mayhew's ..... ₱ gro. $9.00
Snell's Corrugated, Cup Pt. ..... 40&10%
Snell's Knurled, Cup Pt. ..... 40&10%
Victor Knurled, Cup Pt. ..... ₱ gro. $7.50

Rivet—
Regular list ..... 75@75&10%

Saw—
Atkin's:
Criterion 40%
Adjustable 40%
Disston's Star, Monarch and Triumph 30%
Morrill's No. 1 ..... $15.00
Nos. 3 and 4, Cross Cut $20.60
No. 5, Mill $30.00
Nos. 10, 11, 95 ..... $15.60
No. 1 Old Style $10.00
Special $16.25
Giant Royal Cross Cut ..... ₱ doz. $7.50
Royal, Hand ..... ₱ doz. $4.50
Taintor Positive ..... ₱ doz. $6.75

Shaving—
Fox Shaving Sets, No. 30 ..... ₱ doz., net, $24.00
Smith & Hemenway Co.'s 75%

Sharpeners, Knife—
Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ₱ doz $1.50
Mounted Kitchen Sand Stone, ₱ doz $1.50
Natural Grit Carving Knife Hones, ₱ doz $3.00
Quick Cut Emery Carving Knife Hones, ₱ doz $1.50
Quick Edge Pocket Knife Hones, ₱ doz $2.50
} 25%

Skate—
Smith & Hemenway Co., Eureka 50%

Shaves, Spoke—
Iron ..... doz. $1.25
Wood ..... doz. $2.00
Bailey's (Stanley R. & L. Co.) 45%
Chapin-Stephens Co. ..... 30@30&10%
Goodell's, ₱ doz. $9.00 ..... 15&10%

Shears—
Cast Iron..	*7*	*8*	*9 in.*
Best	*$16.00*	*18.00*	*20.00 gro.*
Good	*$13.00*	*15.00*	*17.00 gro.*
Cheap	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:
Best quality Jap ..... 70&10&5%
Best Quality Nickel ..... 60&10&5%
Tailors' Shears ..... 40@40&10%
Acme Cast Shears ..... 40@40&5%
Columbian Cutlery Co.:
Sheep, 1900 list ..... 30&10&5%
Grass ..... 50&10%
Horse or Mule ..... 50&10%
W. H. Compton Shear Co.:
Japan Handles, Nickel Blades, ... 60&10&5%
Full Nickel ..... 50&10&5%
Heinisch's Tailor's Shears 10%
National Cutlery Co.'s Nickel Plated, 60&10%; Japan Handles ..... 70&10%
J. Wiss & Sons Co.:
Best Quality Jap'd ..... 60&10%
Best Quality Nickeled ..... 50&10%
Tailors' 25%

Tinners' Snips—
Steel Blades ..... 30&5@30&10%
Steel Laid Blades ..... 50&10%
Acme Cast Snips ..... 40@15&5%
W. H. Compton Shear Co., Forged Steel Handles 35%
Forged Handles, Steel Blades, Berlin 50%
Heinisch's Snips 40%
Jennings & Griffin Mfg. Co.'s 6¼ to 10 in ..... 33⅓&7½%
National Cutlery Co.'s Forged Steel 50%
Niagara Snips 40%
P. S. & W. Forged Handles, 25%; W. R. W 50%
J. Wiss & Sons Co.:
Wiss Forged Steel 25%

Pruning Shears—
W. H. Compton Shear Co., Dropped Forged Steel 35%
Cronk's Hand Shears 33⅓%
Cronk's Wood Handle Shears 33⅓%
Disston's Combined Pruning Hook and Saw, ₱ doz, $18.00 ..... 25%
Disston's Pruning Hook only, ₱ doz., $12.00 ..... 25%
J. T. Henry Mfg. Co.:
Pruning Shears, all grades 40%
P. S. & W. Co. ..... 40&10%
Columbian Cutlery Co.:
Hedge, Wilcut Brand ..... 60&10%
Lawn and Border, Wilcut Brand, ... 60&10%

Sheaves—Sliding Door—
Reading 40%
R. & E. list 15%

Sliding Shutter—
Reading list 40%
R. & E. list 15%

Shells—Shells, Empty—
Brass Shells, Empty:
Climax, 10 and 12 gauge ..... 60&5%
Club, Rival, 65&5%; First Quality, ... 60&5%
Paper Shells, Empty:
New Rapid, 10, 12, 16 and 20 gauge, ... 25&10%
Climax, 10 and 12 gauge; Acme and Magic, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade ..... 25&5%
Union, League, 10 and 12 gauge, Rival Grade 25%
New Climax, Defiance, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge 20%
Challenge, Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade 20%

Shells, Loaded—
Loaded with Black Powder 40%
Loaded with Smokeless Powder, medium grade ..... 40&5%
Loaded with Smokeless Powder, high grade ..... 40&10&10%
Union Metallic Cartridge Co.:
New Club, Black Powders 40%
Nitro Club, Smokeless Powders ..... 40&5%
Arrow, Smokeless Powders ..... 40&10&10%
Winchester:
Smokeless Repeater Grade ..... 40&5%
Smokeless Leader Grade ..... 40&10&10%
Black Powder 40%

Shingles, Metal— Per Sq.
Edwards Mfg. Co.:

	Painted.	Galv.
14 x 20	$4.25	$6.00
10 x 14	4.50	6.25
7 x 10	4.75	6.50

Wheeling Corrugating Co.:

Dixie, 14 x 20 in	$4.05	$5.05
Dixie, 10 x 14 in	4.25	5.45
Dixie, 7 x 10 in	5.25	6.70

Shoes, Horse, Mule, &c.—
F.o.b. Pittsburgh:
Iron ..... per keg. $4.10
Steel ..... per keg. $3.85
Burden's, all sizes ..... ₱ keg $3.90

Shot—
25-lb. bag.
Drop, up to B $1.70
Drop, B and larger 1.95
Buck 1.95
Chilled 1.95
Dust 2.30

Shovels and Spades—
Association List ..... 40&7½@40&10%
Avery Stamping Co. 40%

Snow Shovels—
Long Handle ..... $2.50@$2.75
Wood and Mall, D Handle, ... $2.65@$2.90

Sieves and Sifters—
Hunter's Imitation, gro $9.50
Hunter's Genuine, per gro $12.00

Sifters, Ash—
Acme Ball Bearing Sales Co., Acme Automatic Ash Sifter, each, $3.25; ₱ doz $39.00

Sieves, Seamless Metallic
Per dozen.

Mesh	*1½*	*16*	*18*	*20*
Iron Wire	*$1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire	*$1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.
Mesh 18, Nested ..... doz. $0.90@0.95
Mesh 20, Nested ..... doz. $1.00@1.05
Mesh 24, Nested ..... doz. $1.30@1.40

Sinks, Cast Iron—
Painted, Standard list:
12 x 12 to 22 x 36 in 60%
20 x 24 to 24 x 50 in 50%
24 x 60 to 24 x 120 in 30%
Barnes' low list 60%
NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—
Cast Iron ..... 70@70&10%
Steel ..... 35@40%

Slates, School—
Factory Shipments.
"D" Slates ..... 50@50&10%
Eureka, Unexcelled Noiseless ..... 60&7 tens.
Victor A, Noiseless ..... 60&4 tens &5%

Slaw Cutters—See *Cutters.*

Snaps, Harness—
German ..... 40@40&10%
Covert Mfg. Co.:
Derby, 25%; Yankee, 30&2%; Yankee Roller, 30&2%
High Grade, 40%; Trojan 40%
Jockey 25%

Snaths—
Grass Scythe ..... 50@50&5%

Snips, Tinners—See *Shears.*

Spoons and Forks—
Silver Plated—
Good Quality ..... 50&10@60&5%
Cheap ..... 60@60&10%
International Silver Co:
1847 Rogers Bros. ..... 40&10%
Rogers & Bro., William Rogers' Eagle Brand ..... 50&10%
Anchor, Rogers Brand 60%
Wm. Rogers & Son ..... 60&10%

Miscellaneous
German Silver ..... 60@60&5%

Tinned Iron—
Teas ..... per gro. 50@55¢
Tables ..... per gro. $0.90@$1.00
Atlas Mfg. Co.:
Tea Spoons, ₱ gro ..... 50¢@55¢
Table Spoons, ₱ gro ..... $0.90@$1.00

Springs— Door—
Bardsley's Spring and Check 40%
Chicago (Coil) ..... 40&10%
Gem (Coil) 20%
Pullman Door and Gate 10%
Reliance (Coil) ..... 40&10%
Star (Coil) 35%
Torrey's Rod, 39 in ..... ₱ doz. $1.00

Carriage, Wagon, &c.—
1¼ in. and Wider: Per 100 lb.
Black ..... $4.75@$5.00
Half Bright ..... $4.75@$5.00
Bright ..... $5.25@$5.50
Painted Seat Springs:
1½ x 2 x 26 .... per pair. 45@47¢
1½ x 3 x 28 .... per pair. 68@71¢

Sprinklers, Lawn—
American Foundry & Mfg. Co.:
Cactus, 65%; Japanese, 70%; National, ₱ doz $12.00
Enterprise ..... 25@30%
Hero Fruit Jar Co., ₱ doz $4.50
Philadelphia No. 1, ₱ doz, $12; No. 2, $15; No. 3, $20 ..... 30%

Squares—
Nickel plated .. } *List Jan. 5, 1900.*
Steel and Iron .. } *80@—%*
Rosewood Hdl. Try Square and T-Bevels ..... 40&10&10@70%
Iron Hdl. Try Squares and T-Bevels ..... 40&10@40&10&10%
Disston's Try Squares and Bevels, Rosewood Handle, 60 & 10%; Iron Stock and Bevel 15%

Squeezers, Lemon
Wood, Porcelain Lined:
Cheap ..... doz. $1.00
Good Grade ..... doz. $1.25
Tinned Iron ..... doz. $0.75@1.00
Iron, Porcelain Lined ... doz. $1.75
Victor, ₱ gro $9.00

Staples—
Barbed Blind ..... 85&5@85&10%
Electricians' ..... 80&10&10@85%
Fence Staples, Polished, $2.05:
Galvanized $2.35
Poultry Netting Staples ..... per lb. 3¼@3¼¢

Steels, Butchers'—
Dick's 30%
Foster Bros. 30%

Steelyards— .... 30@30&10%

Stocks and Dies—
Blacksmiths' ..... 50@50&10%
Curtis Rev'bie Ratchet Die Stock 25%
Derby Screw Plates 25%
Green River 25%
Lightning Screw Plate 25%
Little Giant 25%
Reece's New Screw Plate 25%

Stoners, Cherry—
Enterprise ..... 25@30%

Stones, Axe—
Pike Mfg. Co., Axe Stones (all kinds) 33⅓%

Glass Cutters' Stones—
Pike Mfg. Co., Glass Cutters' Stones and Supplies 40%

Stones, Oil, &c.—
Pike Mfg. Co., 1907 list: ₱ lb
Arkansas St. No. 1, 3 to 5½ in. $2.80
Arkansas St. No. 1, 5½ to 8 in. $3.50
Arkansas Slips No. 1 ..... $4.00
Lily White Washita, 4 to 8 in. ..... 60¢
Rosy Red Washita, 4 to 8 in. ..... 60¢
Washita St., Extra, 4 to 8 in. ..... 50¢
Washita St., No. 1, 4 to 8 in. ..... 40¢
Washita St., No. 2, 4 to 8 in. ..... 25¢
Lily White Slips ..... 90¢
Rosy Red Slips ..... 90¢
Washita Slips, Extra ..... 80¢
Washita Slips, No. 1 ..... 70¢
Washita Slips, No. 2 ..... 40¢
} 33⅓%
India Oil Stones (entire list) 33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit 40%
Quickcut Emery and Corundum Axe Stone, Double Grit 33⅓%
Quickcut Emery Rubbing Bricks 40%
Hindostan No. 1, R'g'lar. ₱ lb 8¢
Hindostan No. 1, Small ..... ₱ lb 10¢
Turkey Oil Stones, Extra, 5 to 8 in. ..... ₱ lb 80¢
Queer Creek Stones, 4 to 8 in. ..... 20¢
Queer Creek Slips ..... 40¢
Sand Stone ..... 6¢
} 33⅓%

Scythe Stones—

Pike Mfg. Co., 1907 list:
Black Diamond S. S. ℔ gro, $12.00
Lamoille S. S. ℔ gro, $11.00
White Mountain S. S. ℔ gro. $9.50
Green Mountain S. S. ℔ gro. $7.00
Extra Indian Pond S. S. ℔ gro. $8.00
No. 1 Indian Pond S. S. ℔ gro, $7.50
No. 2 Indian Pond S. S. ℔ gro, $5.00
Leader Red End S. S. ℔ gro, $5.00
Quick Cut Emery.... ℔ gro. $10.00
Pure Corundum..... ℔ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat. $8.80
Emery Scythe Rifles, 3 Coat. $11.00
Emery Scythe Rifles, 4 Coat. $13.20
Balance of 1907 list 33⅓%.
Lectro (Artificial), ℔ gro., $12.00 33⅓%
$12.00 ..... 33⅓%
Lightning (Artificial), ℔ gro. $18.00 ..... 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers..... ℔ gro. $9.00

Stops— Bench—

Millers Falls..... 15&10%
Morrill's, ℔ doz., No. 1, $10.00.... 50%
Morrill's, No. 2, $12.50..... 50%

Door—

Chapin-Stephens Co..... 50@50&10%

Plane—

Chapin-Stevens Co..... 20%

Straps— Box—

Acme Embossed, case lots..20&10&10%
Cary's Universal, case lots...20&10&10%

Stretchers, Carpet—

Cast Iron, Steel Points..doz. 55¢
All Steel Socket...doz. $2.00@2.25
Excelsior Stretcher and Tack Hammer Combined, ℔ doz., $6.00....20%

Stuffers, Sausage—

Enterprise Mfg. Co., Stuffers and Lard Presses..... 25@25&7½%
National Specialty Co., list Jan. 1, 1902 ..... 30&5%
P., S. & W. Co..... 40&10&5%

Sweepers, Carpet—

Goshen Sweeper Co.:	Per doz.
Gilt Edge	$27.00
Superfine	26.00
Majestic	24.00
Select, Nickeled	22.00
National Sweeper Co.:	
National Queen, Nickeled	$27.00
Martha Washington, Nickeled	25.00
Monarch, Japanned	20.00
Perpetual, Japanned	18.00
Streator Metal Stamping Co.:	
Model E, Sanitaire	$25.00
Eureka	15.00
Streator Majestic, Nickeled	24.00
Streator Conqueror, Japanned	22.00

NOTE.—Leading Manufacturers give the following rebates from list prices: 50c per dozen on three-dozen lots: $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots.

Tacks, Finishing Nails, &c.

American Carpet Tacks.90&25@—%
American Cut Tacks..90&25@—%
Swedes' Cut Tacks.L..90&30@—%
Swedes' Upholsterers'.90&35@—%
Gimp Tacks.....90&35@—%
Lace Tacks.....90&35@—%
Trimmers' Tacks.....90&30@—%
Looking Glass Tacks.....65@—%
Bill Posters' and Railroad Tacks, 90&40@—%
Hungarian Nails.....80@—%
Finishing Nails.....70@—%
Trunk and Clout Nails..75&5@—%

NOTE.—The above prices are for Straight Weights.

Miscellaneous—

Double Pointed Tacks, 90&6 tens@—%

See also Nails, Wire.

Tanks, Oil and Gasoline—

Wilson & Friend Co.:

Gal.	Gasoline	Oil
30	$2.75	$3.00
60	$3.50	$4.00
110	$5.00	$5.75

Tapes, Measuring—

American Asses' Skin....50@—%
Patent Leather.....25@30&5%
Steel ..... 33⅓&5%
Chesterman's ..... 25@33&5%
Keuffel & Esser Co.:
Favorite, Ass Skin.....40&10@50%
Favorite, Duck and Leather..... 25&5@25&10%
Metallic and Steel, lower list, 35@35&5%; Pocket, 35@35&5%.
Lufkins:
Asses' Skin..... 40&10@50%
Metallic ..... 30@30&5%
Patent Bend, Leather...25&5@25&10%
Pocket ..... 40@40&5%
Steel ..... 33⅓@33⅓%
Wiebusch & Hilger:
Chesterman's Metallic, No. 34L, etc. 25%
Chesterman's Steel, No. 1038L, etc. 35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger per 100 lb.....$2.55@$2.80

Thermometers—

Tin Case, Cabinet, Flange, Dairy, &c.....30@35%

Ties, Bale—Steel Wire—

Single Loop..... 82½&10%
Monitor, Cross Head, &c.70&22½%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White..... 20@20&5%

Haying—

Myers' Hay Tools..... 50%

Ice Tools—

Gifford-Wood Co..... 15%

Miniature—

Smith & Hemenway Co.'s, Davidson, ℔ doz., Nickel Plated, $1.50; Gold Plated..... $2.00

Saw—

Atkins' Cross Cut Saw Tools....35&5%
Simond's Improved..... 33⅓%
Simonds' Crescent..... 30%

Ship—

L. & I. J. White..... 25%

Torches—

Hammers, Engine, ℔ doz..... $4.50

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, doz., $1.15@$1.25; gro.....$11.50@12.00
Harper, Champion or Paragon, doz., $1.25@1.40; gro. $13.00@13.50

Game—

Imitation Oneida..... 75@10%
Newhouse ..... 50&5%
Hawley & Norton..... 65&10%
Victor ..... 75@75&10%
Oneida Community Jump..... 70&5%
Stop Thief..... 60%
Tree Trap..... 60%
Hector ..... 75@75&10%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes, 12¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine), ℔ doz.:

	Crate lots.	Small lots.
No. 1, Rat.....	$11.50	$14.50
No. 3, Rat.....	$5.75	$6.50
No. 3½, Rat.....	$4.70	$5.25
No. 5, Mouse.....	$2.25	$3.00

Animal Trap Co.:
Out o' Sight, Mouse, ℔ doz.....$0.60
Out o' Sight, Rat, ℔ doz..... 1.20
Easy Set, Mouse, ℔ doz..... .35
Easy Set, Rat, ℔ doz..... .85
Out o' Sight Chockers, ℔ doz. holes ..... .12
Out o' Sight, Tin, 5-hole, ℔ doz. traps ..... .75

Trowels—

Disston Brick and Pointing.....25%
Disston Plastering..... 20%
Disston "Standard Brand" and Garden Trowels..... 30%
Kohler's Steel Garden Trowels, ℔ gro., 5 in., $4.80; 6 in., $6.00.
Never-Break, Forged Steel Garden Trowels, in bulk, net ℔ gro. $5.50
In 1 doz. boxes..... ℔ gro. $6.00
Woodrough & McFarlin, Plastering.25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern..... 50&10%
Western Pattern..... 60&10%
Handy Trucks..... ℔ doz. $16.00
Grocery ..... ℔ doz $15.00
McKinney Trucks.....each, net $10.00
Model Stove Trucks..... ℔ doz $18.50

Tubs, Wash—

M'f'gr's list, price per gross.

No.	0	1	2	3
Galvanized.	$67	$79	$91	$103
	10&7½&5&5%			

Twine, Miscellaneous—

Flax Twine:
No. 9, ¼ and ½-lb. Balls .21@23¢
No. 12, ¼ and ½-lb. Balls .19@21¢
No. 18, ¼ and ½-lb. Balls .16@18¢
No. 24, ¼ and ½ -lb. Balls. 15½@17½¢
No. 36, ¼ and ½-lb. Balls .15@17¢
Chalk Line, Cotton ¼-lb. Balls .....24@29¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz. .....8½@19¢
Cotton Wrapping, 5 Balls to lb. according to quality..13½@19¢
American 2-Ply Hemp, ¼ and ½-lb. Balls..... 13½@15¢
American 3-Ply Hemp, 1-lb Balls ..... 13½@16¢
India, 2-Ply Hemp, 1½-lb. Balls, Balls (Spring Twine)...7½@9¢
India 3-Ply Hemp, 1-lb. Balls 7¼@9¢
India 3-Ply Hemp, 1½-lb. Balls, 7@8½¢
2, 3, 4 and 5-Ply Jute, 1½-lb. Balls ..... 9@11¢
Mason Line, Linen, ½-lb. Bls.17¢
No. 26½ Mattress, ¼ and ½ lb. Balls, according to quality. 30@60¢
Wool, 3 to 6 ply....B 6¢; A 7½¢

Vises—

Solid Box..... 60@60&10%

Parallel—

Athol Machine Co.:
Simpson's Adjustable..... 40%
Standard 40%
Amateur 25%
Columbian Hdw. Co., 40&5%:
Slide 65%
Fisher & Norris Double Screw, net, each, Nos. 2, $10.50; 3, $16.00; 4, $20.50; 5, $27.00; 6, $32.00.
Fulton Mach. & Vise Co.:
F. & R. Double Swivel Machinists' 40%
Star, Solid Jaw, Machinists'..... 40%
Hollands':
Machinists' ..... 40@40&5%
Keystone ..... 65&5@70%
Lewis Tool Co.:
Adjustable Jaw..... 30%
Monarch, 50%; Solid Jaw..... 50%
Massey Vise Co.:
Clincher 40%
Parallel Bar..... 15%
Perfect, 15%; Lightning Grip..... 15%
Merrill's 25%
Millers Falls Oval Slide Pattern.60&10%
Parker's:
Victor, 20@25%; Regulars....20@25%
Vulcan's ..... 40@45%
Combination Pipe..... 55@60%
Prentiss ..... 20@25%
Rock Island..... 25%
Snediker's X. L..... 33⅓%
Stephens' 33⅓%

Saw Filers

Disston's D 3 Clamp and Guide, ℔ doz., $24.00, 30%; Clamps..... 30%
Perfection Saw Clamps, ℔ doz....$4.50
Reading 60%

Wood Workers—

Fulton Mach. & Vise Co.:
F. & R. Double Swivel Coachman's 40%
Star Solid Jaw Woodworkers'....60%
Massey Vise Co.:
Lightning Grip, 15%; Perfect....15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.80; 14 in., $8.00.

Miscellaneous—

Fulton Machine & Vise Co., Combination Pipe..... 70%
Holland's Combination Pipe..60@60&5%
Massey's Quick Action Pipe..... 40%
Parker's Combination Pipe:
87 Series, 60%; 127 Series, 60&5%; No. 870, 40%.
Rock Island Pipe..... 25%

Wads—*Price per M.*

B. E., 11 up..... 60¢
B. E., 9 and 10..... 70¢
B. E., 8..... 80¢
B. E., 7..... 80¢
P. E., 11 up..... $1.00
P. E., 9 and 10..... 1.25
P. E., 8..... 1.50
P. E., 7..... 1.50
Ely's B. E., 11 and larger. $1.70@1.75
Ely's P. E., 12 to 20..., $3.00@3.25

Dis. 15%

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:
Enameled ..... 45&10%
Ground ..... 50&5%
Plain or Unground..... 60%
Country Hollow Ware, per 100 lbs ..... $2.75@$3.00
White Enameled Ware:
Maslin Kettles..... 65&10%
Covered Wares:
Tinned and Turned..... 35&10%
Enameled ..... 45&10%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware..... 33⅓%
El-an-ge ..... 60&10%
Iron Clad Ware..... 70&10%
Lava and Volcanic, Enameled..40&10%

Tea Kettles—

Galvanized Tea Kettles:

Inch	6	7	8	9
Each	45¢	50¢	55¢	65¢

Steel Hollow Ware—

Avery Stamping Co.:
Never-Break Spiders and Griddles ..... 65&10%
Steel Kettles, Maslins Scotch Bowls, Tin'd..... 60%
Steel Stew Pans, Stew Pots, etc. Porcelained 50%
Cleveland Stamping & Tool Co.:
Solid Steel Spiders and Griddles ..... 65&5%
Solid Steel Kettles..... 60&5%

Warmers, Foot—

Pike Mfg. Co., Soapstone....40@40&10%

Washboards—

No.	℔ doz.
800—Brass King, Single Surface, Open Back	$2.80
862—White Hen, Spiral Grimp Glass	$3.35
964—Royal Blue Enamel, Single Surface, Ventilated Back	$3.35
172—Our Best, Single Zinc, Soap Drainer	$3.35
722—Soap Saver, Single Zinc, Iron Top	$3.35
100—Northern Queen, Single Zinc, Perforated, Open Back	$3.00
134—Universal, Single Zinc, Extra Family Size Ventilated Back	$2.80
760—Banner Globe, Single Zinc, Ventilated Back	$2.25
57—Peerless, Double Zinc, Spring Protector	$3.70
56—Red Cross, Double Zinc, Swing Protector	$3.60
17—North Star, Solid Zinc, Swing Protector	$3.60
797—Jewel, Single Zinc, Pail Size.	$1.25

St. Louis Washboard Co.
Ben Hur, Brass, Open Back..... $2.50
Brass Key, Open Back..... $2.75

Washers—Leather, Axle—

Solid ..... 90@90&10%
Patent ..... 90@90&5%
Coil: ⅞ 1 1⅛ 1¼ inch. 9¢ 10¢ 11¢ 14¢ per box.

Iron or Steel—

Size bolt.... 5-16 ⅜ ½ ⅝ ¾
Washers....$4.90 4.00 2.70 2.50 2.30
The above prices are based on $6.50 off list.

In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.
Avery Stamping Co.:
Standard, in 200 lb kegs, $6.00 ℔ 100 lb. disct.; in 100 lb kegs add 10¢ net ℔ 100 lb; in 5 or 10 lb boxes, add 50¢ net ℔ 100 lb; in 1 lb boxes, add $1.00 net ℔ 100 lb.

Cast Washers—

Over ½-inch, barrel lots, per lb. 1½@1¾¢

Wedges—

Oil Finish..... lb., 2¼@2¾¢

Weights—Hitching—

Covert Mfg. Co..... 30&2%

Sash—

Per net ton..... $19.50@$21.00

Wheels, Corundum and Emery—

Pike Mfg. Co., Corundum, 65%; Emery 75%

Well—

8-in., $2.00; 10-in., $2.30; 12-in., $3.00; 14-in., $4.45.

Wire and Wire Goods—

Bright and Annealed:

6 to 9	72&10&7½%	
10 to 18	72½&10&10%	
19 to 26	75&10&10&2½%	
27 to 36	77½&7½%	

Galvanized:

6 to 9	72½&10%
10 to 14	72½&10&5%
15 to 18	72½&10&5%
17 to 18	72½%
19 to 26	70&5&2½%
27 to 36	65&10&10%

Coppered:

6 to 9	65&10&10%
10 to 14	70&10&5%
15 to 18	65&10&10&10%
19 to 26	70&5&2½%
27 to 36	72½&10&2½%

Tinned:
6 to 18..... 67&10&10%
Brass..... 15%¢ lb., base
Copper..... 15¼¢ lb., base
Cast Steel Wire..... 50%

Spooled Wire—

Annealed and Tinned..75@75&10%
Brass and Copper....70@70&10%
Retailers' Assortments, per box, $1.90@$2.10

Wire Clothes Line, See Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

Steel Wire Goods.....90&40%
Brass Wire Goods.....90&40%
Brass Cup and Shoulder Hooks, 85%

Wire Cloth and Netting—

Galvanized Poultry Netting, 80&10@80&10&5%
Screen Cloth, 12 Mesh, Per 100 sq. ft.; Painted, $1.35; Galvanized, $1.95; 14 Mesh, Bronze $6.50.
Standard Galv. Hardware Grade: 100 ft. rolls, 2½ to 48 in. wide, Per 100 sq. ft.
Nos. 2, 2½ and 3 Mesh....$2.75
Nos. 4 and 5 Mesh.....$3.00
No. 6 Mesh.....$3.25
Nos. 7 and 8 Mesh.....$3.75

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural ....80&10@80&10&5%
Alligator or Crocodile.70&10@75%
Baxter Pattern S Wrenches, 70&5@70&10%
Drop Forged S.....45@45&5%
Acme ..... 60&10%
Alligator Pattern, 70%; Bull Dog..70%
Bemis & Call's:
Adjustable S, 40&5%; Adjustable S Pipe, 40&5%; Briggs Pattern, 40%; Combination Bright, 50%.
Steel Handle Nut..... 50&5%
Combination Black..... 50&5%
Merrick Pattern..... 50&5%
Boardman's 40%
Coes' Genuine Knife Hdl...40&10&5&5%
Coes' Genuine Steel Hdl...40&10&5&5%
Coes' Genuine Key Model..40&10&5&5%
Coes' Genuine Hammer Handle..... 40&10&5&5%
Coes' "Mechanics'"...40&10&10&5&5%
Donohue's Engineer..... 40&10%
Eagle 70%
Gem Pocket..... 50%
Hercules 70%
W. & B. Machinist:
Case lots..... 50&10%
Less than case lots..... 50%
W. & B. Railroad Special:
Case lots..... 50%
Less than case lots..... 40&10&5%
Solid Handles, P., S. & W..50&10%; full cases..... 50&10&5%
Standard Nipple Mfg. Co.:
Duplex Chain..... 50%
Uwanta Wrench Co.:
Uwanta Special, Iron Handle.... 40&10&5%
Other Wrenches..... 50%
Vulcan and Agrippa Chain..... 50%
Whitaker Machinists'..... 50&10%
Wizard Adjustable Ratchet..... 50%

Fruit Jar—

Beni. P. Forbes, Triumph, ℔ gro., $7.50; per doz..... $0.90

Wrought Goods—

Staple Hooks, &c., list March 27, '02..... 90@—%

Zinc— (*Cask lots at mill.*)

Sheet.....per 100 lb., $6.75